



PISDAC II CLOSEOUT REPORT

August 31, 2006

The PISDAC Project, managed by J.E. Austin Associates, Inc. and Nathan Associates Inc., prepared this publication for review by the United States Agency for International Development.

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J.E.AUSTIN ASSOCIATES, INC.

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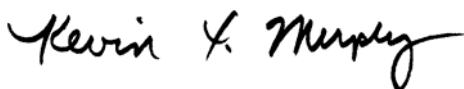
To Our PISDAC Partners:

The Government of Pakistan has set ambitious goals of economic growth and poverty alleviation and has demonstrated the ability to achieve impressive targets in recent years. The U.S. Agency for International Development has supported this effort in a number of practical ways. Thanks to USAID, J.E. Austin Associates has been able to work with an exciting group of private sector champions and enlightened public sector leaders to reposition several important industries on a more competitive basis. The catalytic process for developing better strategy has been a defining force for the PISDAC project.

The following report presents an array of impressive results from the first two years of this project. Millions of dollars of investment have been mobilized. Numerous practical policy initiatives have been implemented. The Competitiveness Support Fund was established. The lives of small farmers have improved thanks to the introduction of small-scale milk chillers at the village level, allowing farmers to store and sell their milk. Model quarrying technologies are improving productivity in rural areas. A country brand was created for Pakistan's gems and jewelry.

The enthusiasm of the numerous participants from these industries has made this an enjoyable and rewarding process. The leadership of Pakistan's Small and Medium Enterprise Development Agency (SMEDA) enabled this engagement to take place. Others in senior government positions at the provincial and national levels, including several ministers and their staffs, provincial technical and development planning offices, a number of specialized agencies, and many universities were involved. What has emerged in a little over two years has been a true partnership among all parties to move Pakistan's economy onto a more secure competitive footing.

J.E. Austin looks forward to working with those industries that are part of PISDAC and with those yet to join. We also look forward to our continued partnership with the private sector and with the Government of Pakistan at all levels. We would like to thank the Government of Pakistan, USAID, SMEDA, the industry cluster leaders and all those leaders who have made this effort a success to date. Acknowledgments and thanks cannot adequately recognize the efforts of those involved. Our appreciation will be reflected in a redoubling of efforts to achieve further significant and measurable results in the coming months.



Kevin X. Murphy
President, J.E. Austin Associates

ACRONYMS AND ABBREVIATIONS

ADB	Asian Development Bank
AIGS	Asian Institute of Gemological Sciences
APCEA	All Pakistan Commercial Exporters Association
APGMJA	All Pakistan Gems Manufacturers and Jewelers Association
BNU	Beaconhouse National University
CAD/CAM	Computer Assisted Design/Computer Assisted Manufacturing
CIBJO	Confédération Internationale de la Bijouterie, Joaillerie, Orfèvrerie des Diamantes, Perles et Pierres (aka the World Jewellery Confederation)
CFTC	Common Facility Training Center (for the Marble & Granite sector)
CFTMC	Common Facility Training and Manufacturing Center (for the Gems & Jewelry sector)
CSF	Competitiveness Support Fund
DP	Pakistan Dairy Development Company; Dairy Pakistan
EPB	Export Promotion Bureau
EU	European Union
FANA	Federally Administered Northern Areas
FATA	Federally Administered Tribal Areas
FCT	Farm Cooling Tanks
G&J	Gems and Jewelry
GCMMF	Gujarat Cooperative Milk Marketing Federation
GGIP	Gems and Gemological Institute of Pakistan
GIA	Gemological Institute of America
GoP	Government of Pakistan
GSP	Geological Survey of Pakistan
ICA	International Colored Stone Association (sic)
KIBOR	Karachi Inter-Bank Offered Rate
kt	karat
LAO	London Assay Office
LUMS	Lahore University of Management Sciences
M&G	Marble and Granite
MOIPSI	Ministry of Industries, Production and Special Initiatives
MoU	Memorandum of Understanding
NGO	Non Government Organization
NPV	Net Present Value
NRSP	National Rural Support Programme
NWFP	North West Frontier Province
PAID	Process-Action-Investment-Delivered
PASDEC	Pakistan Stone Development Company
PC-I	Planning Commission Proforma I (the Government of Pakistan's prescribed template for project proposals)
PCSIR	Pakistan Council for Scientific and Industrial Research
PGJDC	Pakistan Gems and Jewelry Development Company
PIDC	Pakistan Industrial Development Corporation
PIDE	Pakistan Institute of Development Economics
PISDAC	Pakistan Initiative for Strategic Development and Competitiveness
PKR	Pakistan Rupee
PSFD	Pakistan School of Fashion Design
PSQCA	Pakistan Standards & Quality Control Authority

PTC+	An international training center based in Holland
R&D	Research & Development
SME	Small and Medium Enterprise
SMEDA	Small and Medium Enterprise Development Authority
SOW	Scope of Work
SWOG	Strategic Working Group
SWOT	Strength, Weakness, Opportunity, Threat
TA	Technical Assistance
UAF	University of Agriculture, Faisalabad
USAID	United States Agency for International Development
USD	US dollar
UVAS	University of Veterinary and Animal Sciences, Lahore
WGC	World Gold Council

INTRODUCTION AND SUMMARY

The purpose of this report is to present an assessment of project results under the second phase of the Pakistan Initiative for Strategic Development and Competitiveness Initiative (PISDAC II), a USAID project implemented by J.E. Austin Associates Inc. and Nathan Associates Inc. The project commenced on May 10, 2004. A modification effective August 12 of the same year extended the Task Order through August 31, 2006 and amended its Scope of Work. The overall objective of PISDAC, currently in a third phase, is to support self-selected Pakistani industries in developing strategies for upgraded production, as well as instituting a self-sustaining process by which such industries organize themselves to increase their productivity.

The modified task order called for the Contractor to build on work completed under Phase I, during which workshops were held with more than 15 industry sectors to assess their potential for growth and their commitment to work together in Strategic Working Groups (SWOGs) to increase their competitiveness. The sectors that self-selected themselves to work with PISDAC on a regular and more intensive basis in Phase II are Dairy, Gems and Jewelry, and Marble and Granite. The Contractor worked with the Pakistan Small and Medium Enterprise Development Authority (SMEDA) and various other government agencies to help the self-selected industries organize, plan, and implement actions to increase their competitiveness.

The modified task order outlined the following project deliverables:

- 1) The selected industries will have developed better strategies for upgrading industrial production.
- 2) Leaders in these and other industries will be able to identify sources of funds, private and public, to implement these strategies.
- 3) Public-private dialogue on competitiveness and the role of the public sector will be more effective. Industries, independently and in concert, will be able to identify specific reforms that could improve the ability of Pakistani small and medium enterprises to expand and/or increase profitability.
- 4) Training providers, including universities, will be more capable of meeting the changing needs of the labor market.
- 5) SMEDA will be better positioned to help SMEs in and across sectors develop competitiveness strategies that add value.

The achievements of PISDAC II are a reflection of these deliverables. Since 2004, PISDAC II has:

- Formed Strategy Working Groups (SWOGs) for three industry sectors — Dairy, Gems and Jewelry, and Marble and Granite.
- Brought all members of the value chain in each industry sector on a single platform.
- Facilitated policy dialogue between the industries and the GoP.
- Facilitated strategy development for each sector.
- Assisted the SWOGs to identify and define strategic initiatives.
- Secured critical policy reforms for each sector.
- Developed critical linkages within each of the value chains and with local and international supporting organizations.
- Addressed workforce development issues through multiple strategies, including strengthening ties to academia, creating internships, and establishing exemplary facilities.
- Increased awareness about the linkage between competitiveness, productivity and prosperity.

- Facilitated establishment of the Competitiveness Support Fund (CSF). CSF has been established through the Ministry of Finance with USD 20 million funding, half from USAID and half from the GoP.

This report is organized as follows. In Section I, the methodology for assessing the progress of each SWOG's activities is presented. Section II discusses the extent to which each deliverable outlined above was met by PISDAC efforts. In Section III, each SWOG is analyzed according to the methodology described. The final section presents a benefit-cost ratio of USAID support for the activities against investments (both public and private) generated wholly or partially by PISDAC activities, as well as in terms of actual and potential economic impacts.

Six annexes offer supporting calculations and detailed analyses of project processes and activities. Annex I is a note explaining the reasoning used in the Net Present Value calculations and Annex II is tables showing these calculations. Annex III is a complete Process Evaluation organized by sector, providing both "Lessons Learned" and detailed descriptions of the specific technical assistance PISDAC II provided. Annexes IV through VI provide consultant reports highlighting key issues for each of the sectors.

METHODOLOGY

There are two extremes to avoid in monitoring and evaluating cluster competitiveness initiatives such as PISDAC. The first extreme is to create milestones and performance measurements that unduly straightjacket those carrying out the initiative. Examples are projects that specify which clusters someone must work with before it has been determined that the cluster can coalesce and that the appropriate leadership and commitment will be forthcoming. There is a need to preserve flexibility in project implementation. At the other end of the continuum, indicators that remain vague and amorphous well into the project life cycle are also not helpful.

This assessment of PISDAC results follows the Process-Action-Investment-Delivered results framework (PAID),¹ which was conceptualized to avoid extremes while monitoring and evaluating cluster competitiveness initiatives. The PAID approach allows contractors to avoid monitoring and evaluation that is too vague and general and those that unduly straightjacket the implementers. A cluster competitiveness initiative will normally last between 3-5 years, and the framework suggests that the kind of indicators used during the life of the project should vary. A brief explanation is provided below:

Process Indicators track the ability of the project team to engage the leadership of industry, elicit a strong response, and structure a collaborative agreement. These indicators should be set at the project outset, and are very important during the first year of activities.

Action Indicators track whether progress is being made or not in implementing the strategic initiatives identified in the first phase of the project. These cannot be programmed at the outset.

Investment Indicators track co-investments by project stakeholders. Co-investment typically begins modestly (through the contribution of cluster executive time, provision of workshop venues, etc.) but then accelerates as the project moves to maturity. It may take time to prepare feasibility studies and projects, and to secure financing. The most significant investments occur at the stage of implementing action initiatives and should become significant in years 3 through 5.

Delivered Results Indicators focus around increases in productivity and value-added,² but may also include export revenues, employment growth, new enterprise growth, average wages, and average profitability in the industry. It must also be demonstrated that the project contributed directly (wholly or partially) in delivering these results. These results become measurable in years 3-5. Additionally, there are delivered results that are more qualitative. The emergence of trust and cooperation within an industry sector, business-government and academic collaboration, change of mindsets, and ripple effects can be observed but not easily quantified.

The approach outlined above allows for the evaluation of the process, combined with rigorous accountability, reporting and quantification of results later on. However, we must recognize that many of the cluster (in PISDAC's vocabulary, SWOG) initiatives have ***begun to be implemented recently and will outlast the project.*** Thus, a full evaluation needs to consider the potential impact

¹ The full framework is presented and discussed in Kevin Murphy, "Monitoring and Evaluation of Cluster Competitiveness Initiatives," September 2003.

² In earlier efforts to monitor and evaluate cluster competitiveness initiatives, Andrew Warner suggested measuring cluster competitiveness results in terms of value-added.

of the project once the initiatives are fully implemented, and account for the economic benefits that will materialize in the years to come.

As such, the delivered results section considers both progress achieved to date (both qualitative and quantitative, as outlined above), as well as the potential economic impact of the project once the initiatives are fully implemented. For the latter, and following many aspects of the criteria and methodology employed by Bolnick³ in assessing previous initiatives, the concept of “economic impact” used here is based on the standard methodology for an economic evaluation of development projects. In essence, the impact is defined as the *expected net present value (NPV) of additional incomes* generated directly by PISDAC’s SWOG initiatives. This type of analysis was only carried out for initiatives that satisfy three screening criteria:

- 1) Implemented and/or highly probable. The analysis only covers activities that are at a mature stage of planning, and thus have been already implemented or have a high probability of materializing within the next 24 months. Initiatives are deemed highly probable when they enjoy active support by SWOG members, are being subjected to feasibility studies or will be soon, and seem to have financing forthcoming.
- 2) Attributable. The analysis was only done for initiatives in which PISDAC’s SWOGs played a critical role in either producing or accelerating the realization of economic benefits. Field interviews with each initiative or investment sponsor were carried out to determine PISDAC’s role in making the initiative materialize.
- 3) Quantifiable. The analysis covers only activities where there is a sound basis for calculating the impact, based on information from SWOG coordinators and SWOG members, strategy documents, business plans, feasibility studies, and industry studies. Many activities and initiatives are likely to have an economic impact, but they are inherently very difficult to measure or data was not available at the time of the assessment, and thus they were excluded from this type of analysis.

The methodology unavoidably involves a mixture of measurement and judgment. As far as possible, the judgments err on the conservative side. Also, the analysis is limited to direct effects for the industry in question; inter-industry linkages and multiplier effects are excluded though identified as appropriate. In addition, the analysis is static as no attempt is made to estimate dynamic benefits that may arise as investors and producers respond to higher profit margins or new market opportunities. All of these restrictions ensure that the estimates represent a lower bound on the net economic impact of SWOG initiatives.

³ Bolnick, Bruce. “The Economic Impact of TCI Cluster Initiatives in Sri Lanka: Interim Assessment and Recommendations,” November 2003.

ASSESSMENT OF OVERALL PROJECT RESULTS

As discussed in the introductory section of this report, the modified SOW under task order 839 outlined five deliverables. What follows is a brief assessment of how well those deliverables were met by PISDAC activities.

1. The selected industries will have developed better strategies for upgrading industrial production.

PISDAC effectively built on the outcome of workshops that were held with more than 15 industry sectors to assess their potential for growth and commitment to work together in Strategic Working Groups (SWOGs) to increase their competitiveness. The sectors that self-selected through their commitment to work with PISDAC on a regular and more intensive basis are Dairy, Gems and Jewelry, and Marble and Granite. With PISDAC's technical assistance, each SWOG analyzed their sector, applying a minimum of five benchmarking and other diagnostic tools leading to the identification of opportunities and constraints to increase the industry's competitiveness and as such a new strategic orientation for upgrading the industry. PISDAC acted mainly as a facilitator, which ensured stakeholder ownership and acceptance of the resulting strategies and initiatives. Additionally, each of the three published strategies included the identification of policy constraints and workforce development needs. The quality of the strategies has led to many testimonies from various stakeholders. To cite a recent example, the GoP's Planning Commission expressed a belief that the SWOG's Marble and Granite strategy should serve as a benchmark for other sector export strategies.

PISDAC II has been successful in enlisting support from the various stakeholders to move beyond strategizing to implementation. SWOGs have already undertaken many initiatives or are at an advanced stage of planning despite the relatively short two-year period. Combined, the three SWOGs have taken steps towards the implementation of **more than 50 strategic and policy initiatives**. Most of these were identified in the original strategy, but others were added as the process moved forward. The status of each initiative is summarized in the SWOG-by-SWOG results section.

2. Leaders in these and other industries will be able to identify sources of funds, private and public, to implement these strategies.

In total, **USD 6.4 million** has been co-invested by project stakeholders in SWOG strategic initiatives over the two-year period, and a total of nearly **USD 83 million** is already expected in the next 3-5 years. This speaks to the success PISDAC and the SWOGs have had over the past two years in identifying and linking initiatives to sources of funding. These investments are broken down in the *Investment Indicators* for each SWOG in the following section. Initiatives stemming from the SWOG process have or will be funded and implemented with financial support from a wide variety of sources, including their own-equity funds, other donors, at least seven different government agencies, and commercial banks.

A special case is the creation of the Competitiveness Support Fund (CSF). PISDAC envisioned originally the creation of a USD 1.5 million Strategic Fund to support selected pilot projects and initiatives generated by the SWOGs. The need for a fund to promote innovation and competitiveness was illustrated through a benchmarking exercise conducted by PISDAC at the Small and Medium Enterprise Development Agency (SMEDA). PISDAC mobilized specialized technical assistance to advance the fund's creation and initiated discussions with the GoP on the concept. The

GoP reacted positively to the proposed initiative, indicating the GoP's willingness to commit a large amount of resources to it. Further discussions between USAID and the GoP resulted in the creation of the Competitiveness Support Fund (CSF), with the latter's commitment to match USD 10 million to be provided by USAID.

The fund was officially launched in May of 2006 and the GoP financial contribution has been approved. The CSF still has the potential to attract additional funding from other donors that have expressed strong interest in co-investing in the initiative, and such new funds will also be matched by the GoP. The fund's overall aim is to promote knowledge-based enterprise start-ups, increase enterprise productivity, and reinforce innovation-driven economic growth. Within that framework, the fund envisions investing in approximately 120 projects over the next three years, through a 50-50 match-making facility (30 percent of the resources), a 70-30 venture-capital and business incubator facility (40 percent resources), and a technical assistance facility (30 percent). With its current approved funding (USD 20 million), the CSF should be able to generate at least an additional USD 9.5 million of private investment in those projects. PISDAC is continuously assisting SWOGs to promote the projects they have generated to CSF's facilities.

3. Public-private dialogue on competitiveness and the role of the public sector will be more effective. Industries, independently and in concert, will be able to identify specific reforms that could improve the ability of Pakistani small and medium enterprises to expand and/or increase profitability.

Each of the three SWOGs that PISDAC has been working with has served as an effective platform for public-private consultation to take place. Over the past two years, the SWOGs have built working relationships with government counterparts, who have been receptive and supportive of many initiatives. Such dialogue leads to the creation of sector management companies, in the context of which public-private consultation will continue to take place.

The diagnostic and benchmarking tools that were applied to each industry sector lead to the identification of 30 policies and institutional reforms to support each sector's competitiveness. PISDAC assisted the three SWOGs to develop proposals and present the highest priority ones to the appropriate government agencies. The GoP accepted eleven policy reform proposals that, among other improvements, have lowered entry barriers, made production upgrades easier, and decreased operating costs. Other reforms are either under ministry consideration or proposals are being prepared. Through the process, the SWOGs have acquired the capacity to identify reforms, discovered the strength of speaking with a unified voice, and learned how to present their case effectively. The SWOGs are continuing to identify additional reforms.

4. Training providers, including universities, will be more capable of meeting the changing needs of the labor market.

The strategic planning process facilitated by PISDAC made it evident to all of the SWOGs that shortages of skills in their respective industries were limiting their ability to reposition their sectors into higher value-added segments and compete successfully in international markets. Training needs across all segments of each value chain have been identified, and private sector-academia partnerships are emerging in each industry to address skills deficits through new course offerings and curricula enhancement, improving the ability of universities to meet current labor requirements. The SWOG has used its benchmarking trips to identify institutions internationally that could help in addressing the skill shortages, and linkages with Pakistani counterparts have been facilitated. The skill

shortages are also being addressed through demonstration centers and pilot projects stemming from the SWOGs' strategies.

5. SMEDA will be better positioned to help SMEs in and across sectors develop competitiveness strategies that add value.

Since the beginning of the project, PISDAC has forged a very close relation with Pakistan's Small and Medium Enterprise Development Agency (SMEDA). J.E. Austin's approach to building Strategic Working Groups focusing on industry competitiveness, which emphasizes private sector participation and leadership and inclusion of the entire value chain, was shared with SMEDA, whose leaders proved keen to test out the approach under SMEDA's auspices.

SMEDA was founded in 1998, and at the time of PISDAC's commencement, they were preparing sector strategies for priority sectors. However, the process was mainly led by SMEDA itself, instead of encouraging the private sector to lead with public sector facilitation. Letting the private sector lead is crucial, as it improves the outcome of the strategic process while building ownership of the strategy being crafted. It forges healthy linkages among participants and builds a constituency for policy reforms.

Additionally, PISDAC consultants conducted a benchmarking study of SMEDA vis-à-vis similar SME development organizations in the world (India, Thailand, Turkey and Ireland), helping SMEDA to understand where it needed to build its capacity to reposition itself for success. The most prominent of the gaps and shortcomings identified was the lack of the institution's ability to bring about change in SMEs through technological innovation, business incubation, and industry-academia linkages. This brought about changes in SMEDA's structure to accommodate two new evolving themes and functions: sector studies & innovation, and competitiveness.

SMEDA assigned six full-time members (two per SWOG) to work with PISDAC in convening and engaging each SWOG, applying industry diagnostics, crafting competitive strategies, and moving forward to implementation. These professionals were tasked with the same activities as PISDAC SWOG coordinators, allowing them to have exposure and training in keeping the private sector engaged in the SWOG, act as facilitators, and using effective diagnostic tools towards drafting competitive strategies. They became adept in using tools such as leadership mapping, allowing them to identify leaders in SWOG meetings, which is key for a sustainable process, and private sector ownership.

All this has led SMEDA to re-think their approach, and they have incorporated better tools and approaches into their activities. Cluster facilitation is one of the four core activities SMEDA is engaged in now, enriched by SMEDA's partnership with PISDAC.

The results of PISDAC, as enumerated in this report, further reinforced to SMEDA the value of the new approach, and they have subsequently shifted their focus to allow the private sector to play a more prominent role. SMEDA is thus in a better position to accomplish its mission, and it enjoys an enhanced capacity to assess industries and facilitate public-private dialogue.

SWOG BY SWOG RESULTS

DAIRY

Dairy Process Indicators

The Dairy SWOG is composed of 16 farmer organizations and 6 rural support programs (representing a total of 710,000 farmers), 15 processors, 6 NGOs working with farmers, 3 feed providers, the 4 provincial Livestock and Dairy Development Departments (employing over 11,000 breeding and veterinary services providers), 3 industry associations, 4 equipment manufacturers, 7 universities, and 2 business service providers. Additionally, government quality testing and research laboratories (PCSIR, UVAS, UAF and PSQCA) have been supporting SWOG's initiatives, as have federal ministries and agencies such as the Ministry of Food, Agriculture and Livestock; the Ministry of Industries, Production and Special Initiatives; the Ministry of Science and Technology; the Central Board of Revenue; and the Department of Sales and Income Tax;. Support has also been provided by the banking sector, including the State Bank of Pakistan, Bank of Punjab and Standard Chartered Bank.



The SWOG has met formally 27 times to craft their strategy and shape the subsequent initiatives. With PISDAC's technical assistance and facilitation, five industry diagnostic tools were employed to improve the understanding of the sector's constraints and opportunities: Porter's Diamond, SWOT analysis, industry and market trends analysis; value chain analysis; and benchmarking analyses of the sector vis-à-vis four successful industries worldwide (in Australia, New Zealand, Holland and India). On February 28, 2006, a complete strategy accepted by the SWOG was published,

and SWOG leaders have presented it to the Prime Minister and the Minister for Industries, Production and Special Initiatives.

The SWOG identified and agreed on 9 strategic and 10 policy initiatives⁴ to raise the productivity and the competitiveness of the sector. Throughout the process, PISDAC provided international and national specialized technical assistance, including business strategists, dairy experts, research specialists, and dairy farming experts to validate the strategy and to provide assistance in structuring and implementing their initiatives. In some instances, the technical assistants provided through PISDAC have been subsequently hired by individual SWOG members to advise on the establishment of large dairy production facilities.

Dairy Action Indicators

The Dairy SWOG has moved decisively to implement their strategy, undertaking these key actions:

⁴ The distinction between strategic and policy initiatives is not always clear-cut, as some strategic initiatives have policy implications and vice-versa. Initiative totals are only counted once, either as a strategic initiative or a policy initiative.

- In September 2005, the Pakistan Dairy Development Company (known as Dairy Pakistan or DP) was established with a mission to carry out the SWOG's strategy for the sector's development. DP's Board of Directors is composed of public and private sector stakeholders.
- The first model commercial farm has been established, with a plan in place to upgrade 300 more by mid-2007.
- Dairy Pakistan has finalized the plan for establishing 2,150 chillers by mid-2007 and completing site visits by the end of August.
- The SWOG has established a New Milk Pocket Development Core Group, which includes a progressive feed-mill owner who is working closely with the farmers to demonstrate the advantages of using better quality feed. Likewise, as a first step towards the development of new milk supply pockets, the SWOG has undertaken a survey in Balochistan, to be followed by a pilot program in that province.
- SWOG members have been active in the electronic and print media to educate the masses on the health and safety problems associated with poor quality milk.
- The SWOG has established a Food Safety Standards Core Group, which has been working with the Pakistan Standards & Quality Control Authority (PSQCA) on the revision of food safety laws. A presentation to the Ministry of Science and Technology is scheduled by the end of September 2007.
- The SWOG has created a Training Core Group, which has linked up with Holland's PTC+, an international training center, to carry out a benchmarking analysis of Pakistan's dairy training and research institutes, and prepare a proposal to bridge identified gaps. PTC+ is now in the process developing a PC-I document with the University of Veterinary and Animal Sciences, Lahore (UVAS) to lay out plans for the establishment of a practical training and research facility covering all aspects of training and research for the dairy sector.
- The SWOG has prepared a broad Scope of Work for a study that will analyze minimum pasteurization standards. It will also examine existing distribution chains and identify, define, and evaluate all the aspects of the value chain needed to establish effective milk collection, pasteurization, packaging, and distribution systems in Lahore, Karachi and Sialkot. The study will also aim to assess the level of demand and probable additional cost to the consumer for pasteurized milk.
- The University of Agriculture, Faisalabad (UAF) has recently signed an MoU with Wageningen University in the Netherlands, whereby the universities are collaborating on a number of programs including accreditation of UAF's food testing laboratory per international standards.
- The SWOG developed proposals on 9 of the 10 policy reforms identified for presentation to the GoP. Two of these were approved under PISDAC's II period of performance (import duties were reduced on folding cartons and aluminum foil for food packaging, and duties and sales tax were eliminated on milk chillers).

Dairy Investment Mobilization

As of the beginning of August 2006, the **Dairy SWOG has co-invested USD 1,941,729 in their initiatives** (USD 305,062 from private businesses; USD 1,680,000 from government entities and other donors). A further total of USD 29 million has been already committed or is expected over the next three years from private and public sources. What follows is a breakdown of these investments:

- SWOG executives have allocated a significant amount of time to attend presentations, conferences, and meetings. We estimate that their contribution in time represents USD 80,000 for the two-year period.⁵
- The SWOG co-financed study tours to Holland, Australia and New Zealand, and India with an investment of USD 40,846.
- Private sector milk processors funded a USD 58,626 study on the effects of tariff and non-tariff barriers in the industry.
- USD 18,090 was invested by a businessman to establish the first model commercial farm in Pakistan (with Dairy Pakistan's assistance).
- A processor provided approximately 2,000 technician hours, valued at USD 100,000, to conduct a survey of 128 farms throughout Pakistan jointly with Dairy Pakistan and PISDAC.
- Processors provided USD 7,500 in research towards the proposal for zero-rating the sales tax for dairy products.
- USD 1.7 million has already been disbursed by the Government of Pakistan to fund Dairy Pakistan's initiatives; a further USD 6.4 million is committed for the following years.
- A further USD 16.7 million of private investment is expected as a result of model commercial farm and farm cooling tank schemes. Around 6,600 applications have been received, of which 2450 will be selected. A private processor indicated his intention to invest USD 3.3 million in a collection, pasteurization and milk distribution facility in Karachi.
- A partnership between a processor and the GoP to help farmers procure high yielding animals from Australia could bring a further USD 2.6 million in investment. Austrade is facilitating a trip for Pakistani dairy farmers to meet quality breeders.

Delivered Results in the Dairy Sector

Quantifiable Impacts — Dairy

Model Commercial Farm

One of the main strategic initiatives of the Dairy SWOG is to establish model commercial dairy farms, using advanced techniques that increase productivity per animal, with the ultimate goal of increasing the supply and quality of milk. The benchmarking exercises highlighted that Pakistan's animal productivity was well behind other major dairy producers. The model farms will have a demonstrable impact on this situation, serving to disseminate superior practices throughout Pakistan, and provide practical training to farmers.

To advance the initiative, the sector management company Dairy Pakistan has been focusing on putting together a program to establish 300 model commercial farms. Interventions in the farms are to be carried out under the guidance of DP technicians in three phases, during which best practices related to providing water at the right time, proper record management, upgrading feed and vaccinations, and other improvements will be introduced. The exact nature of the intervention will vary by farm size and current practices. The program focus is on mechanizing the farm to increase productivity per animal, not to provide support for the acquisition of more animals. Farms selected

⁵ This estimate is based on 8 hours/day per SWOG member including travel and out-of-office time, at a value of USD 50/hour.

for the program are expected to negotiate a loan to improve their farms, but the interest will be borne by DP funds provided by the GoP, and if certain conditions are met, 50 percent of the loan will be provided by DP/GoP. Preliminary tests conducted by DP on pilot farms established that as early as phase I of the intervention, milk production increased in a range of 25-30 percent, while the costs of producing under the better practices increased a mere 3 percent.⁶

The initiative is fully attributable to the work of the Dairy SWOG and technical assistance through PISDAC. With PISDAC TA, the SWOG was able to highlight productivity gaps, establish linkages with appropriate international institutions, trigger the creation of DP, secure necessary funding, and structure the best practices program.

A total of 104 million rupees (USD 1.7 million) will be invested in the 300 model farms; including interest costs, the grant, and the private investment to be borne by the farmers.⁷ Extrapolating from a recent survey of 128 farms, those 300 farms can be expected to have around 16,800 animals, producing an average of 2.3 liters a day in a given a year. To estimate the economic impact of the model commercial farm program, we assumed a 25 percent increase in the number of liters produced (the lower bound of what DP pilots indicated), and increased the costs by 9 percent (three times what DP pilots indicated), to account for the fact that the pilots were conducted on farms with relatively higher skill levels. Subtracting the pre-tax earnings⁸ before and after the intervention results in an additional income of 45.7 million rupees (USD 761,000) per year. Limiting the benefits to a five-year period, the resulting NPV of additional income as a result of this initiative (returns to capital) is **USD 0.85 million**. (See Table I in Annex II.)

This analysis, however, does not capture the principal gains, which are expected to be increased productivity on neighboring farms as the demonstration effect causes best practices spread. Also excluded is the value that could be added to the extra milk produced by processors or the farmers themselves further down the value chain.

DP has received 3,550 applications from interested farms, from which 300 will be selected based on criteria such as willingness to adopt an open farm policy and pass new information along, the farmer's inclination to invest in his farm, and access to market (to ensure that these farms have access to markets and that the extra milk will effectively be sold).⁹ Interventions in as many as 120 farms are to start in September 2006, and the rest of the interventions are expected to start in 2007. An MoU was signed with Bank of Punjab to open a window for interest-free loans. DP is now staffed with 10 technicians dedicated to this initiative.

Farm Cooling Tanks

Refrigeration and logistics are significant constraints to milk production and distribution in Pakistan. While milking occurs twice per day, in most areas only the morning milk (60 percent of potential output) is distributed and sold. The rest is either consumed on the farm or wasted. Of the milk that

⁶ Source: DP. The cost increase occurs on a total cost basis, not on a per-liter basis.

⁷ For simplification, we assumed in our calculations that the total investment (including the interest costs) would be made at the outset; although in practice it will be financed by loans as indicated.

⁸ Taxes are treated as income transfers from the private sector to the government, so they are not considered costs and thus are not deducted from benefits estimates.

⁹ In other words, there is no point in increasing the supply of milk if it will not find a market.

farmers do sell, an additional 15-19 percent is wasted on route to market due to spoilage from lack of proper cooling, storage and transportation systems.¹⁰ Demand is growing faster than supply.

One of the key initiatives of the Dairy SWOG is to upgrade rural and urban supply chains by facilitating investment in chilling tanks for purchase and collection of milk; which will increase the quality and supply of milk as well as provide farmers an outlet for selling it. DP has advanced this initiative in what is known as the Model Collection Program or Farm Cooling Tank (FCT) scheme.

The FCT scheme aims at facilitating the installation in Pakistan of an additional 2,150 farm cooling tanks, effectively doubling the number of the ones in place to date. The program is open to anyone who is willing to enter the milk collection business. Prospective owners/operators will be required to make an initial investment of 20 percent of the total costs, and finance the rest through a five-year interest-free loan. The interest is to be absorbed by the GoP through Dairy Pakistan. DP is processing 3,050 applications received after the program was advertised. Those selected will be forwarded to the Bank of Punjab so that they can commence negotiating a loan. The applicants will be selected according to production patterns of each province, ability to operate the tank at a minimum of 60 percent of its capacity, and the availability of all required utilities.

To estimate the economic benefits of the FCT initiative, we calculated the initial outlay of capital of 20 percent of the initial investment (432,000 rupees per tank, multiplied by the expected 2150 cooling tanks). Based on data from current tank operators, the operating cost is 0.90 rupees per liter¹¹. Further, we used a lower bound estimate of 1.50 rupees as the value added per liter for collection and chilling, which results in a margin at this stage of production of 0.60 rupees per liter (although processors noted that a margin of 1 rupee per liter or perhaps even more is likely). Assuming that the tanks will operate at 75 percent of their capacity,¹² and subtracting loan amortization payments as well as interest payments,¹³ the resulting NPV of additional income of this initiative over a five-year period (returns to capital) is USD 6.2 million;¹⁴ demonstrating that this is a viable, attractive investment.¹⁵

However, this NPV does not fully reflect the expected value-added of the initiative in two ways. First, the initiative at a minimum will provide one job opportunity for an operator for each tank. If DP reaches its goal, **a minimum of 2,150 people will be employed**. Second, and most importantly, by providing a “refrigerated market” where farmers can sell their evening milk and by improving distribution after the milk is sold, it is expected the initiative will collect milk that would otherwise have been lost due to the existing constraints. As cited before, it is estimated that 40 percent of milk output never makes it to market, and that of the output that is sold, a further 15-19 percent is wasted on its way due to poor infrastructure. The exact amount of waste reduction will not be known since it varies depending on where the FCTs are located. However, assuming that 9.0 percent (a very conservative estimate) of what is collected in the tanks would have been lost to wastage, and adding back payments to labor to the income stream,¹⁶ **the NPV of additional**

¹⁰ Industry estimates; Dairy SWOG strategic plan.

¹¹ Assuming the tank is running at an average of 75 percent capacity, and including labor costs.

¹² We assumed all tanks to be 1,000 liters, although a few may have greater capacity.

¹³ The loans will be interest free, but the GoP will be paying the costs nevertheless, thus, these costs are included in the benefits calculation.

¹⁴ The income stream includes a residual net asset value of PKR 60,000 per tank, as the tanks are made of stainless steel.

¹⁵ A terminal value of PKR 75,000 per tank (at the end of year 5) is included, as the stainless steel tanks should be easy to sell according to interviewed industry sources.

¹⁶ Assuming a basic monthly payment of PKR 4,000 per month per FCT operator.

income to the economy (returns to capital and labor) of this initiative is USD 61.7 million. (See Table 2 in Annex II.)

The analysis still excludes likely productivity increases due to improved market access; potential value added to the extra milk through the rest of the supply chain; reduced transportation costs, since morning as well as evening milk will be transported in a single shipment; as well as the benefits to consumers from better quality milk. It is a lower-bound estimate of the benefits of the initiative for these reasons as well.

Qualitative and Other Impacts — Dairy

Although dairy associations to promote the sector and establish dialogue with the government have existed in Pakistan since the 1980s, no real coordinated public or private actions had taken place to realize the potential of the industry. As a result of the SWOG efforts, the sector has become “networked” and the private members have been able to speak with one voice. The benchmarking and study trips facilitated by PISDAC have strengthened the relationships among SWOG members. And after learning about institutions such as Dairy Insight (New Zealand), and Dairy Australia, it became obvious to them that a body of this type was necessary in Pakistan. This led to the creation of Dairy Pakistan, a platform to promote the dairy sector through which public-private dialogue is taking place.



The SWOG also advocated successfully for reforms to the policy constraints they identified, two of which have been acted upon by government and the others of which are being considered, pointing to an improved public-private dialogue among the sector’s stakeholders. Import duties were reduced from 25 percent to 15 percent and 10 percent on folding cartons and aluminum foil for food packaging, respectively. This has lowered entry barriers for additional packaging companies in what has been until now a monopoly in Pakistan, and could lead to reduced prices for packaging. It may also lead to packaging alternatives for dairy and other beverage companies who would have the option of differentiating their products through packaging variations. Likewise, the elimination of import duties and sales tax on milk chillers (farm cooling tanks) is undoubtedly an incentive to individuals and companies from and outside the sector to invest in chillers and thus improve the milk collection network. These chillers in turn allow small farmers to improve access to markets for their day and night milk and reduce overall collection costs, while supporting the growth of the dairy industry with more and better milk. The certainty of a market should also spark productivity at the farm level. The policy reforms will undoubtedly help the Farm Cooling tank initiative achieve its targets faster and at a lower cost.

PISDAC has also connected the Pakistani Dairy Sector to international networks. Useful partners were identified and linkages developed during the benchmarking/study between Pakistan’s farmers, processors, NGOs, and universities and their foreign counterparts. Technology is being transferred through these linkages, and Pakistanis have had a chance to interact with their more experienced counterparts.¹⁷

¹⁷ Linkages were established, and are currently being strengthened, with Dairy Insight (New Zealand), Dairy Australia, AMUL (India), PTC + (Holland), Austrade, Massey University, Lincoln University, Otago University, Wintec Polytechnic College, Wageningen University, GD, Partner Voor Gezonde Dieren, Stoas University,

Through the SWOG's work, the potential of the sector has acquired visibility in the press and electronic media. Further, SWOG members were asked to go on a Presidential trip to New Zealand to strengthen ties between Pakistan and that country. Such publicity has made investors think about dairy and its potential, attracting the attention of large enterprise groups such as Crescend, Divan and Ittifaq.

Additionally, the barriers between producers and processors have begun to fade. Processors have connected with suppliers and potential suppliers through the SWOG platform, and the prospects of increased and improved milk supply have triggered processors' investments in expanding their capacity.

Finally, there is increased awareness among public and private SWOG members that skilled manpower will be needed all across the value chain — from farms and collection centers to distribution channels — and regulatory oversight will be needed to build the industry's competitiveness. The Training Core Group has started working on a sub-strategy to address skill gaps in the dairy sector, with input from both public and private sector stakeholders on their specific labor needs. The private sector is now working closely with academia to develop a proposal for establishing a sustainable and demand-driven practical training center at University of Veterinary & Animal Sciences, Lahore (UVAS).

The SWOG has created a portal, a door, for businessmen to invest in the development of this industry.

- Farruk Ikram, CEO, Millac Foods (Pvt.) Ltd.

Interview, April 2006.

Delta Instruments, EVD international, Murray Golburn, Bonlac, National Foods, Parmalat, Ballantynes, Bega Cheese, Challenge Dairies, University of Melbourne, Fonterra, Downer MBL, Murdoch, NDA Engineering, GEA, Tetra, APV, Waikato Milking Systems, Ghallager Group, FERNZ, Wrightson Seeds, New Zealand Food Standards Authority, Ministry of Agriculture and Forestry New Zealand, New Zealand Federated Farmers, and Dexcel, to name the most significant ones.

GEMS AND JEWELRY

G&J Process Indicators

The Gems and Jewelry SWOG comprises about 80 core members, all of whom are enterprises involved in activities that represent the complete value chain — processors, retailers, manufacturers, artisans, exporters, and equipment manufacturers. About 30 percent of them deal exclusively with gems, 30 percent exclusively with jewelry, and 40 percent are active in both. Many academic and training institutions, such as LUMS, Pakistan School of Fashion and Design, Beaconhouse National University, Technical Education & Vocational Training Authority, the Institute of Business Administration, the Punjab Vocational Training Council (PVTC), and the Gems and Gemological Institute of Pakistan have participated in many of its initiatives. The SWOG is also working closely with Pakistan's Council for Scientific and Industrial Research (PCSIR), Pakistan's National Accreditation Council, and Pakistan's Council for Quality Standards Assurance, as well as with the Ministry of Commerce through the Export Promotion Bureau, and the Ministry of Industries through SMEDA. Donors such as the EU and ADB have also supported its initiatives.

At the completion of this report, the SWOG had held 34 meetings to formulate its strategy and advance the resulting initiatives. With the help of PISDAC, five widely used diagnostic tools were applied to improve members' understanding of the sector's constraints and opportunities, including Porter's Diamond, SWOT analysis, industry and market trends analysis, value chain analysis, and gap analysis/benchmarking vis-à-vis better performers (including study tours to the US and India, as well as a marketing mission to Bangkok). In February 2006, a complete strategy accepted by the SWOG was published, and subsequently presented to the Minister of Industries, Production and Special Initiatives; the Export Promotion Bureau; and Pakistan Industrial Development Cooperation's (PIDC) Board.



The SWOG arrived at the common, overall strategy of *repositioning the industry from a cost-based sector to a high value-added, competitive brand in the global market*. A total of 8 strategic initiatives and 14 policy actions have been identified to advance this vision and build the industry's competitiveness. Throughout the process, PISDAC has provided world-class TA that validated the SWOG's strategy and assisted in structuring and implementing their initiatives. This TA included a jewelry marketing and branding specialist, a hallmark and assaying specialist, a manufacturing expert, and an expert in gemology training.

G&J Action Indicators

The main actions taken to implement the Gems and Jewelry SWOG's strategic and policy initiatives are listed below:

- A concept paper to establish a Jewelry Common Facility Training and Manufacturing Center has been prepared with the help of international expertise.
- A country campaign to position the industry in the international market and establish recognition at trade shows was launched at the Bangkok Gems and Jewelry Show in September, 2005. With PISDAC's assistance, the SWOG participated under a single

umbrella and launched the Pakistan Gems and Jewelry Brand. A promotional website has been developed, as well as high quality brochures, catalogs, and promotional material. Pakistani producers have been receiving press coverage in the national and international media.

- SWOG has conducted study tours to the US and India to learn marketing and industry trends.
- Pakistan Gems and Jewelry Development Co., a sector management company led by a Board composed of private and public members, was established to facilitate the implementation of the SWOG's initiatives.
- AIGS, one of the world's top gemology institutes, signed an MoU with Pakistan's GGIP to introduce world-class gemology training.
- A hallmark and assaying demonstration center is functional, and an action plan to introduce the practice in Pakistan has been completed.
- The GoP has accepted 6 policy proposals of out 14 identified and advocated by the SWOG. As a result, the time permitted to export jewelry made from imported gold was extended from 90 to 180 days; the time permitted to remit proceeds from exports of jewelry was extended from 120 to 240 days; the Valuation Committee for the clearance of gems and jewelry exports was abolished; the sector became recognized as an industry; import duties and sales taxes on gems and Jewelry machinery/equipment were abolished; and the Pakistan School of Fashion Design was granted degree-awarding status. The SWOG's other policy proposals are currently under consideration by the relevant ministries.

G&J Investment Mobilization

At the beginning of August 2006, the **Gems and Jewelry SWOG has co-invested USD 558,010 in their initiatives** (USD 188,400 from private businesses; USD 369,610 from government entities). A further sum of USD 2.69 million has already been committed over the next three years.

- SWOG executives have allocated a significant amount of time to attend presentations, conferences, and meetings. We estimate that their contribution in time represents USD 80,000 over a two-year period.¹⁸
- SWOG members have co-invested a total of USD 98,400 for lodging, boarding and meals during the observation and marketing tours to Bangkok, the US, and India.
- The Pakistan Council for Scientific and Industrial Research invested USD 330,000 in mounting an assaying/hallmarking demonstration center in Lahore.
- A private business invested USD 10,000 in equipment to upgrade its lapidary facility.
- The Pakistan Industrial Development Corporation (PIDC) invested USD 30,000 and SMEDA invested USD 9,610 to enable the launching of Pakistan's Gems and Jewelry Brand in Bangkok in 2005.
- Further commitments of investments include USD 2.5 million from PIDC towards the costs of running the sector management company, as well as USD 176,667 towards SWOG

¹⁸ This estimate is based on 8 hours/day per SWOG member including travel and out-of-office time, at a value of USD 50/hour.

participation in this year's Bangkok Show and a trade mission to the Bahrain show. Businesses in the SWOG have also committed USD 14,000 for the Bangkok event.

G&J Delivered Results

Quantifiable Impacts — G&J

One of the main initiatives of the Gems and Jewelry SWOG is to establish Pakistan as a world-class gold jewelry supplier through a country campaign to position the industry in the international market and establish recognition at trade shows. This campaign was successfully launched, with PISDAC's assistance, at the Bangkok Gems and Jewelry Fair in 2005. A few of the of the 17 businesses that attended had done so in the past; nevertheless, what was remarkable¹⁹ was that, with PISDAC's assistance, for the first time they attended the show under a single umbrella and as a single brand, Pakistan Gems and Jewelry. They enjoyed a very elegant constructed pavilion, expert advice from a marketing consultant, press attention, and world-class catalogs and brochures. Some of the material developed to showcase the sector at the fair can be accessed at www.gnipakistan.org. The exhibition was a complete success, leading to **USD 4 million in new export sales of jewelry** to be delivered over the next 12 months — an impressive amount compared to the USD 20 million or so that Pakistan exports annually).

SWOG members confirmed that for the following two quarters, the businesses involved have been able to deliver, and they are forging long-term relationships with their customers. Larger orders should be forthcoming when the ones secured at the fair are delivered. Interviews with participating SWOG members confirmed that the sales reported were to new clients, largely the result of the collective marketing effort.



Gems and Jewelry Pakistan booth at the Bangkok Fair, 2005.

A large percentage of the costs in producing jewelry in Pakistan are accounted for by its gold content (86 percent of the sales price at current prices). These costs, as well as those of financing, were subtracted from the income stream. SWOG members indicated that no capital investments or other inputs, besides gold and labor, were required to fulfill these orders. The costs of the Bangkok marketing effort (USD 150,000, including branding material, technical assistance and participant expenses) were used as an initial investment outlay.²⁰ Labor costs (payments) of USD 237,360 dollars were added back to the income stream. **Over a five-year period,²¹ the NPV (returns to capital and labor) of the marketing initiative is nearly USD 0.7 million.** (See Table 3 in Annex II). Further, the SWOG estimates that 80 artisans, either under sub-contract or at their premises, were involved in producing the gold jewelry. This amounts to nearly USD 3,000 per head, which is more than four times the national average income level.

¹⁹ Source: Interview with G&J SWOG members, April 2006.

²⁰ It should be noted, nevertheless, that this investment in marketing and launching a country brand should yield in the future recognition and other intangibles beyond the sales achieved.

²¹ The calculation keeps the level of additional sales due to improved marketing fixed throughout the period.

Other Impacts — G&J

Beyond the immediate marketing success at the Bangkok fair, the G&J SWOG trips (to Thailand, the US and India) provided the businesses with substantial information on the latest market and

“This has given us such confidence that we can do this and that we can do even better next time.”

— a Karachi jewelry manufacturer, describing his participation in the Bangkok Gems and Jewelry Show, 2005.

production trends in the global industry, and direct market feedback on their products from the sophisticated customers that participate in the sector’s trade shows. According to a few of the participants interviewed, with improved designs and finishes in a few years they could be negotiating orders 10 times as large as those secured in Bangkok. Additionally, they are maintaining regular email

contact with these prospective customers.

Public-private dialogue has also improved noticeably through the SWOG efforts. As mentioned above, the SWOG successfully advocated for the elimination of six constraints that were limiting the sector’s international competitiveness and growth prospects. Although inherently difficult to quantify, the reforms approved by the GoP will reduce the costs of doing business for the sector and facilitate industry repositioning and competitiveness. Indeed, time limits to export jewelry made from imported gold and for remission of proceeds from exports of jewelry were doubled, allowing exporters the opportunity to negotiate better market pricing for their goods; as well as effecting savings in working capital. Likewise, the abolishment of the valuation committee resulted in a more predictable export clearance procedure, allowing Pakistan businesses to serve international customers more effectively. The elimination of import duties and sales taxes on Gems and Jewelry machinery/equipment gives a strong incentive to the industry to upgrade their machinery so they can produce less costly and higher value products. Additionally, the formation of Pakistan Gems and Jewelry Development Company creates a platform for continued public-private consultation to build the sector’s competitiveness.

During the last two years, the Gems & Jewelry SWOG has identified training needs throughout all parts of the value chain, with particular skill gaps identified in gemology, mining, assaying and hallmarking, and jewelry design and manufacturing. The SWOG has initiated efforts to address those needs:

- A Memorandum of Understanding was signed between the Asian Institute of Gemological Sciences (AIGS) Bangkok and the Gems and Gemological Institute of Pakistan. AIGS, a global leader in gemology training, has agreed in principle to open an affiliated campus in Pakistan, which will improve the locally available skilled workforce. In a relatively short period of time, courses in gem identification (including synthetic and heated gems), diamond and color stones grading and pricing, and jewelry design will be offered.
- The SWOG has also identified London Assay Office as a potential provider of training in the field of assaying/hallmarking.
- The SWOG is also working with a CAD/CAM expert and a world-class jewelry manufacturer to design full-length courses to train a pool of Master Trainers in jewelry designing and manufacturing who will be based in Karachi and Lahore.
- The SWOG has worked with Pakistan School of Fashion Design (PSFD) to send two instructors for further training to AIGS in Bangkok and the Gemological Institute of America. PSFD has also initiated a one-month course to teach basic concepts of gems and jewelry design and manufacturing.

- With SWOG input, Beaconhouse National University has launched a degree program in jewelry designing & manufacturing.

In addition, the SWOG has instituted a consortium to work with the Lahore University of Management Sciences (LUMS) to develop a business plan to establish state of the art lapidaries in Pakistan. Through all of these efforts the SWOG has succeeded in strengthening business-academia linkages in the sector.

Finally, the introduction of hallmarking and assaying in Pakistan is underway. The initiative is designed to build consumer confidence internally and abroad by guaranteeing the purity of gold jewelry manufactured in Pakistan. Increased consumer confidence will lead to increase sales domestically and internationally, and reinforce the SWOG's branding strategy. This is a long-term initiative, as it takes time to introduce the system and build its credibility. In a few years, though, the industry expects to increase their market share in important countries such as the UK, which imported USD 2.5 billion worth of jewelry in 2004. Pakistan only exported USD 6.5 million to the UK that year, while India, where hallmarking and assaying were introduced decades ago, exported more than 20 times as much (USD145 million).

MARBLE AND GRANITE

M&G Process Indicators

The Marble and Granite SWOG is now structured around 20 core businesses involved in quarrying, stone processing, wholesaling, retailing, export, and machinery manufacturing. Representatives from these different parts of the industry participate in virtually every meeting. Many of the core members are involved in more than one of these activities, or have expanded into other parts of the value chain as a result of the SWOG process. For example, processors have invested in quarrying when learning about its potential through the SWOG platform. In addition, several other businesses from similar segments of the value chain frequently participate in initiative-specific meetings and regional core group meetings.



SWOG members, Mr. Heirbaut, and Mr. Weinstein in Italy, 2005.

Industry leaders from all major quarrying and processing clusters across Balochistan, Sindh, NWFP, FATA, FANA, and Punjab participate in broader SWOG meetings, and disseminate the SWOG process in their respective regions. Representatives from the provincial Director General of Mines and Minerals, SMEDA, the Export Promotion Bureau (EPB) and the Geological Survey of Pakistan (GSP) have also taken part. R&D organizations and universities, such as the Center of Excellence in Geology at the University of Peshawar and the University of Engineering and Technology (Peshawar) as well as the Institute of Management Sciences in Peshawar have also worked closely with the SWOG. Additionally, the EU's Financial Services Sector Reform Program has collaborated, supporting a marble-asset mapping project generated by the group.

Since inception, the Marble and Granite SWOG has met 29 times to formulate their strategy and advance their strategic initiatives. With technical assistance from PISDAC, the industry conducted a self-analysis using tools such as benchmarking against top performers (including a study tour to Italy), Porter's Diamond analysis, SWOT analysis, industry and marketing trends analysis, and value chain analysis, leading to the identification of constraints and opportunities for the sector as a whole.

The SWOG arrived at an overall strategy of *upgrading the entire value chain focusing on the extraction stage*, initially identifying 9 strategic initiatives and 6 policy initiatives, which were validated by international experts and accepted by the SWOG. PISDAC assisted the SWOG with an international stone-processing expert, a site evaluation expert, and a geologist, who have advised the SWOG on how best to craft and implement their initiatives.

The SWOG made formal presentations of its strategy to the Minister of Industries, Production and Special Initiatives, the Governor of Balochistan and the President and Prime Minister of Pakistan. The SWOG also presented a FATA-specific sector strategy to the USAID Mission Director and to the US Ambassador. In addition, the strategy was disseminated to a broad spectrum of the industry through presentations to stakeholders in Karachi, Peshawar, Islamabad and Quetta.

M&G Action Indicators

The primary actions that the Marble and Granite SWOG has taken to implement their strategic and policy initiatives are listed below:

- SWOG members have invested in five quarries using modern techniques that dramatically increase production levels and reduce wastage.
- From the SWOG platform, M&G leaders incorporated the Pakistan Stone Development Company (PASDEC) on June 24, 2006. PASDEC will serve as the sector management company and facilitate strategy implementation. It held its first Board meeting in July and has drafted a three-year work plan. The Board is comprised of seven private sector members and five from the public, with the chairman and interim CEO chosen from the M&G sector.
- PASDEC, in cooperation with the GoP, has initiated the establishment of 10 model quarries. The SWOG has defined the criteria for quarry selection. The advertisement process is expected to start in the next few months.
- The SWOG has created awareness of the importance of stone testing and has identified stone-testing resources. The Geological Survey of Pakistan, Material Testing Laboratory and the Center of Excellence in Geology at Peshawar University have been included in the process. The Center of Excellence has agreed to provide services in accordance with American Society for Testing and Materials standards, which are accepted worldwide.
- Funds have been secured for the establishment of five Common Facility Training Centers. A PC-I has been developed by the SWOG and a CFTC in Islamabad has already been approved. Additional funds for four more CFTCs have been approved by the President of Pakistan as part of the support for strategy implementation. A proposal for a CFTC in FATA has also been developed.
- A feasibility plan for a common machinery pool, which will lease equipment to quarries, has been developed and funds have been approved for establishing the first one in NWFP.
- With PISDAC's technical assistance, best-practice guidelines for prospecting and planning have been developed, and several onsite exercises have been conducted to disseminate them countrywide. PASDEC will also be conducting detailed prospecting and planning exercises for short-listed candidates in the model quarry program. Linkages have been developed with the Geological Survey of Pakistan to provide technical support to carry out these studies for the industry at an affordable cost.
- Quality standards have been outlined with PISDAC's technical assistance and have been disseminated to industry players through workshops in three regional capital cities. There is increased awareness of quality management and control and better understanding of international market requirements.
- The SWOG has been in continuous dialogue with the concerned regulatory authorities to strengthen the security of land-leasing contracts. A Provincial Advisory Committee was formed in Balochistan to resolve all legal issues regarding quarry leases and will help ensure that lease disputes do not go into litigation and that allotments are more transparent.
- The GoP has accepted SWOG proposals to eliminate import duty and sales tax on all mineral exploration, development and extraction machinery, vehicles and chemicals, as well as of processing machinery.
- The EPB is supporting a policy of testing stone quality before participants exhibit in trade-shows.

M&G Investment Mobilization

As of the beginning of August 2006, the **Marble and Granite SWOG has co-invested USD 3.8 million in their initiatives** (USD 2.8 million by private businesses and USD 1 million from government entities and other donors). A further USD 41.25 million has already been committed over the next three to five years from private and public sources. What follows is a breakdown of these investments:

- SWOG executives have allocated a significant amount of time attend presentations, conferences, and meetings. We estimate that their contribution in time represents USD 80,000 for the two-year period.²²
- The SWOG visited China to investigate machinery options for quarry upgrading and processing, and attended a trade fair at an expense of USD 35,000.
- SWOG expended USD 12,000 in logistic costs to facilitate site visits by PISDAC technical assistants to 20 quarries throughout Pakistan.
- At five quarries, three private businesses invested USD 2.5 million in advanced machinery and techniques (i.e. no blasting).
- A private business invested USD 80,000 to modernize its marble processing machinery.
- At the SWOG's request, the EU financed a Marble and Granite asset map for NWFP, Balochistan, and Sindh, at a cost of USD 1 million.
- USD 33 million has been committed by the President and the Prime Minister for Strategy Implementation, along with USD 5 million for PASDEC operating costs through PIDC.
- A further USD 3.25 million in private investment has already been committed towards a model quarry, a CFTC, and equipment.

M&G Delivered Results

Quantifiable Impacts — M&G



Mr. Heirbaut with a local SWOG member, May, 2006.

Because one of the weakest links in the marble and granite sector value chain occurs at the extraction stage, where 73 percent of the potential volume is wasted, a key strategy of the SWOG has been the establishment of 10 model quarries employing the latest technology to improve the availability and the quality of the marble and granite produced. The model quarries serve demonstration purposes at the same time they help develop the workforce. Recognizing the sector's potential, the government has recently

committed co-investments to help develop this and the rest of the SWOG strategic initiatives. In addition,

three investors have already invested over US 2.5 million to develop five new quarries with improved practices and advanced technology.

²² This estimate is based on 8 hours/day per SWOG member including travel and out-of-office time, at a value of USD 50/hour.

In all of these cases, the SWOG played a crucial role. First, it made investors aware of their opportunities. These investors benefited from information shared among SWOG members regarding available machinery, technology, and best practices, and learned from the SWOG delegations that visited Italy and China. Finally, the confidence of the investors was enhanced through the technical assistance provided through PISDAC. Technical advice on quarry development and validation of feasibility studies gave businessmen the impetus to expand and upgrade their activities. In fact, two of the investors were not in the quarrying business before their involvement in the SWOG: their activities had been confined to processing the mostly irregular blocks being extracted from the quarries under the prevalent but primitive mining procedures.

To calculate the benefits to the economy, we based the income stream on the expected earnings²³ of one of the five quarries, as estimated by a feasibility study which was validated by PISDAC's international experts. Using the new technology promoted by the SWOG, waste at the quarry will be less than 30 percent (instead of 70 or more), it will produce 1400 to 2000 tons per month instead of 200-300, and the product will be square-shaped blocks that are easier to market, process, and transport. Production is assumed to increase annually over the first three years, reaching 18,000 tons in Year 3.²⁴ A rate per ton of PKR 2,500 and PKR 1.75 million (USD 29,166) in annual labor costs were added back to the income stream. Calculations based on these assumptions indicate that over a ten-year period, the NPV (returns to capital and labor) of one quarry is USD 0.69 million. Assuming that the other four quarries can achieve similar results, the NPV as a result of this initiative is **USD 3.4 million**.²⁵ (See Table 4 in Annex II.) The five quarries are employing altogether about 100 workers, many with improved wages as they are being trained to use modern technology such as a wire-rope-cutting system. These wire operators can fetch double the PKR 4,000 monthly salary of an unskilled quarry worker.²⁶

It is worth noting that the NPV estimate only includes five quarries, but the SWOG, through PASDEC, expects to facilitate the development of at least ten others. Likewise excluded from the analysis are the potential benefits throughout the rest of the value chain, which are likely to be quite large. Indeed, as noted in interviews with SWOG members, the lack of quality raw material available domestically for processing has limited investments in this area. Currently, only six export-quality processing gang saws are known to be operating in Pakistan. Each of these gang saws cost about USD .5 million each, and has an annual processing capacity of 8,400 tons.²⁷ As quarry operations expand the availability of raw material (by about 15,000 tons per quarry per year) corresponding investments in gang saws are likely, as well as exports with increased value added and higher paying jobs.

Qualitative Impacts — M&G

The work of the Marble and Granite SWOG has improved the industry's dialogue with the public sector. The SWOG successfully advocated for and obtained three policy changes which will facilitate strategy implementation:

²³ Earnings before tax and royalty payments, the latter two being treated as benefits to the economy as well.

²⁴ It is assumed constant in years 4 through 10.

²⁵ The costs and people employed in each of the five quarries are similar. While each quarry will have different results according to the quality of the stone and its geology, the estimates are based on a conservative rate per ton of PKR 2500. Prices obtained per ton are expected to be much higher — especially for exports.

²⁶ Interview, Faizi Jaffri, Natural Stone Development Company, April 2006.

²⁷ Based on a single 8 hour shift per day over 300 working days.

- Import duties and sales taxes have been eliminated for all mineral exploration, development and extraction machinery.
- Import duties and sales taxes have been eliminated for processing equipment.
- Regulations have been put in place to require stone testing before exhibiting in international trade shows.

The first two changes have reduced barriers to acquiring and investing in advanced machinery and equipment to upgrade production and processing facilities, while simultaneously helping to reduce indiscriminate blasting practices. The stone-testing requirements will promote a better image of Pakistan in the M&G sector. Further, under the auspices of PASDEC, public and private stakeholders will continue to work together to enhance the sector’s competitiveness.

The Marble and Granite SWOG also had a positive impact on workforce development. The SWOG identified skill gaps and training needs for quarry masters, technicians, machinery operators, and geologists. To bridge these gaps, the SWOG has proposed on-site training programs in local and foreign quarries for mining engineers and quarry workers. Further, the processing sub-sector lacks qualified processing machine operators. The industry also suffers from a lack of expertise in quality assessment and environmental and technical subjects. The proposed Common Facility Training Center (CFTC) initiative will act as a hub for training individuals in these areas as well as in skills required for newly identified markets such as handicrafts, mosaics and other value-added products.

MARBLE AND GRANITE SWOG MEMBER SUCCESS

“I have made more money in one year of mechanized quarrying, than all of 5 years of my other businesses.”

- Abdul Hameed Shera, SWOG member

After participating in SWOG and making the study tour to Italy, marble processor Abdul Hameed Shera was inspired to invest in his own quarry project and vertically integrate his factory. Following the initial success of his foray into mechanized quarrying, he has planned further investment in two more mechanized quarries and is now exporting to the U.S.

Finally, linkages have been established between the M&G industry and academia over the last two years. Two academic organizations, the Center of Excellence in Geology at the University of Peshawar and the University of Engineering & Technology Peshawar, have played an active part in developing the sector’s strategy. The Institute of Management Sciences in Peshawar has also been an ally in developing business proposals for various SWOG initiatives and has extended its support to the industry. Further, the Marble and Granite SWOG will offer internships for mining engineering students and related diploma or certificate degree holders at the model quarry sites, and will facilitate internships abroad at benchmarked quarries for on-site training.

BENEFIT-COST RATIOS

In this section, we present two benefit-cost ratios. Table 5 summarizes the co-investments that stakeholders have made in response to PISDAC activities. The first two columns differentiate between public and private investments. It is important to note that these are **funds that have been fully invested** by the respective stakeholders by August 2006. In total, **USD 6.4 million** has been co-invested by project stakeholders in activities supported by PISDAC over the two-year period, and nearly **USD 83 million** is expected in the next three to five years.

When set against the cost of USAID support (USD 3.9 million), project stakeholders have co-invested approximately 1.6 dollars for every dollar of USAID support, and are expected to invest a further USD 8.30.

Table 5: Investments Mobilized by PISDAC Activities

	Private	Gov't /Other Donors	Expected (*)
		USD (millions)	
Dairy	0.3	1.7	29.0
Gems and Jewelry	0.2	0.4	2.7
Marble and Granite	2.8	1.0	41.3
Competitiveness Support Fund			10.0
Total	3.3	3.1	82.9

*Expected investments include investment commitments made by Government, private sector, or other donors that have yet to be disbursed or realized. For example, GoP committed USD 8.09 million to Dairy Pakistan; however, we are only counting USD 1.7 million of this since that is the amount that has been disbursed, while the remaining amount is counted as “expected.”

Investments, though, should be judged also by their returns. Table 6 summarizes the four SWOG initiatives that satisfied the three criteria spelled out in the methodology: implemented or highly probable, attributable to PISDAC, and quantifiable using data currently available.

As discussed earlier, the “economic impact” of the SWOG initiatives is defined here as the *expected net present value of additional incomes* generated directly by the initiative. For the four activities examined in detail, the lower-bound NPV of net additional income totals **USD 66.7 million**. This is a lower-bound estimate of the economic impact. PISDAC II’s budget, USAID’s investment in the project, was USD 3.9 million.

Thus, each dollar of USAID funding for PISDAC’s SWOG initiatives is expected to generate at least 17 dollars of economic benefits for the economy of Pakistan.

We must reiterate that this is a **lower-bound** estimate of the expected economic impact of PISDAC II, on three accounts. First, the analysis only includes benefits for initiatives that are already implemented or highly probable, unambiguously attributable to PISDAC, and quantifiable using data available at this time. Second, conservative assumptions have been used at every step in quantifying

the additional income. Finally, the analysis excludes indirect benefits that may arise through inter-industry linkages and multiplier effects. **The ultimate economic benefit of the SWOG initiatives is likely to exceed what has been estimated here, perhaps by a large amount.**

Table 6: Summary of SWOG Initiatives' Quantifiable Economic Impacts

Sector	Initiative	NPV of net additional incomes (in USD millions)
Dairy	Model Commercial Farm	0.9
Dairy	Farm Cooling Tanks	61.7
Gems and Jewelry	Improved Marketing	0.7
Marble and Granite	Investment in Quarries	3.4
TOTAL		USD 66.7

ANNEX I: CALCULATING THE NPV OF ADDITIONAL INCOMES

For each activity, the net income flow is calculated using actual or conservatively estimated values for the initial capital outlay for each activity, and the net cash flow before tax over a specified projection period. The residual asset value at the end of the projection period is included when known and appropriate.

The income flow is defined in constant prices, with the net present value calculated at a 14.5 percent discount rate. This rate represents the opportunity cost of capital or the risk-adjusted hurdle rate for private investments. This discount rate reflects the approximate current yield (August 2006) of the State Bank of Pakistan ten-year Pakistan Investment Bond, 10.5 percent (i.e. the risk-free rate), plus a risk premium of 4 percent. With this discount rate, a USD 100 investment that yields USD 14.50 per year has a NPV of zero. An activity generates *net additional* income for the economy only to the extent that the return on capital exceeds 14.5 percent. Payments to labor, i.e. wages, are also included as additional net income to the economy where available.

The estimates undertaken for calculating the NPV of additional incomes exclude indirect effects through inter-industry linkages or multiplier interactions, as well as possible dynamic benefits that may arise as investors and producers respond to higher profits or new market opportunities. In essence, the economic benefit as measured here is determined by the *direct* increase in value added (including returns to labor) from the SWOG activity after accounting for the opportunity cost of capital.

ANNEX II: QUANTIFIABLE ECONOMIC IMPACTS CALCULATIONS

Table I: Additional Earnings from the Model Commercial Farms

Assumptions	
Exchange rate	PKR 60 per USD
Discount rate for NPV	0.145
Total investment in model commercial farms ^{a)}	PKR 104,000,000
No. of liters produced by 300 farms/year (16,800 animals @ 2.3 liters/day) ^{b)}	14,103,600 liters
Sales at PKR 18/liter ^{c)}	PKR 253,864,800
Production costs at PKR 14 per liter	PKR 197,450,400
Additional liters produced after invention (25%) ^{d)}	3,525,900 liters
Total output after intervention ^{e)}	17,629,500 liters
Sales after intervention at PKR 18/liter ^{e)}	PKR 317,331,000
Production costs after intervention (9% increase) ^{f)}	PKR 215,220,936
Pre-tax earnings before intervention ^{e)}	PKR 56,414,400
Pre-tax earnings after intervention ^{e)}	PKR 102,110,064
Additional income per year ^{e)}	PKR 45,695,664
Time horizon for cash flow	5 years
Results	
NPV of additional net earnings	USD 850,166

- a) Dairy Pakistan, private and public investment; includes 50% grant at the end of 3 years, and interest-free loan.
- b) 2.3 liters is extrapolated from a survey of 128 farms (DP, J.E. Austin, Nestle).
- c) Prices fluctuate between lean and flush season; we are assuming prices and costs of lean season; margins remain roughly constant year round.
- d) The source of the 25% is DP tests on the first model commercial farm; 25-30% is the range; used the lower bound. The increase is assumed fixed for years 2 to 5, but some additional increases can be expected.
- e) Derived.
- f) DP tests on first model commercial farm indicate 3%, but 9% was used as it can be more representative. The cost increase applied to total costs, not per liter. Initial tests were conducted on farmers with above-average skills.

Table 2: Additional Earnings from Farm Cooling Tank Scheme

Assumptions	
Exchange rate	PKR 60 per USD
Discount rate for NPV	0.145
Capital costs of 2,150 cooling tanks at PKR 432,000 each ^{a)}	PKR 928,800,000
No. of liters expected per year at 75% capacity ^{b)}	588,562,500 liters
Value added from collection and chilling (PKR 1.5/liter) ^{c)}	PKR 882,843,750
Operating costs at PKR .9 per liter ^{d)}	PKR 529,706,250
Initial outlay (20% of capital costs) ^{e)}	PKR 185,760,000
Labor costs per year (1 operator per cooling tank at PKR 4000/month) ^{f)}	PKR 103,200,000
Amount to be financed (80% of capital costs)	PKR 743,040,000
Annual loan amortization (5-year loan, interest free, 60 equal installments) ^{g)}	PKR 148,608,000
Interest costs to be borne by DP (MOIPSI funds) ^{h)}	Variable ^{h)}
Residual net asset value at PKR 75,000 each x 2150 tanks ⁱ⁾	PKR 161,250,000
Wastage reduction due to improved market access and enhanced storage life (9%) ^{j)}	52,970,625 liters
Wastage reduction in PKR at 16.60/liter ^{k)}	PKR 879,312,375
Time horizon for cash flow	5 years
Results	
NPV of additional net earnings without wastage reduction improvement and deducting labor	USD 6,180,514
NPV of additional earnings including wastage reduction and adding back labor payments	USD 61,728,901

- a) Source: DP. Assumes all cooling tanks facilitated under the scheme have a 1000 liter capacity.
- b) 2150 tanks, 365 days/year, 750 liters/day.
- c) Source: Nestle, other processors. Range given was 1.5 to 2.0; lower bound was used.
- d) Source: Nestle. Figure includes maintenance and labor assuming tanks are operating at 75% capacity.
- e) According to FCT Scheme, DP.
- f) Added back to income stream; up to 2 may operate cooling tanks, but used 1.
- g) 57 installments; 60 used for simplification. Interest to be borne by DP, GoP.
- h) Interest costs were calculated at a current 13.3% annual interest rate (KIBOR+2), but the rate is not likely to be fixed. Figures used were PKR 98,824,320; 79,059,456; 59,294,592; 39,529,728; 19,764,864.
- i) Source: Nestle. Added in Year 5 stream.
- j) SWOG estimates 15 to 19% lost en route to market; used a very conservative 9%.
- k) Added to the income stream; average price between lean and flush season, plus PKR .6 value added.

Table 3: Additional Sales from Improved Marketing and Branding, G&J Sector

Assumptions	
Exchange rate	PKR 60 per USD
Discount rate for NPV	0.145
Total investment in trade show participation ^{a)}	PKR 9,000,000
Additional sales achieved ^{b)}	PKR 240,000,000
Cost of gold (86% of sales)	PKR 206,400,000
Time horizon for cash flow	5 years
Labor costs, annual (6.9% the cost of gold) ^{c)}	PKR 14,241,600
Gold financing costs, annual (9%)	PKR 18,576,000
Earnings before taxes per year, constant prices ^{d)}	PKR 782,400
Results	
NPV of additional net earnings	USD 699,413

- a) Includes branding, marketing material and advice, pavilion space, airfare and lodging for 17 participants.
b) Source: after-show survey administered by PISDAC.
c) Source: interview with SWOG manufacturers and exporters; based on a 3-times-a-month turnover.
d) Derived.

Table 4: Additional Earnings from Model Quarry Investments

Assumptions	
Exchange rate	PKR 60 per USD
Discount rate for NPV	0.145
Capital costs	PKR 27,080,000
Earnings before tax and royalty (Y1, Y2, Y3) ^{a)}	4,584,000; 11,836,000; 13,300,000
Time horizon for cash flow ^{b)}	10 years
Labor costs, annual ^{c)}	PKR 1,752,000
Results	
NPV of additional net earnings	USD 686,596
Five quarries with similar results	USD 3,432,978

- a) Source: feasibility study.
b) Years 1-3 taken from feasibility study; years 6-10 assumed constant.
c) According to salary account in feasibility study; added to income stream and assumed constant.

ANNEX III: EVALUATION OF THE SWOG DEVELOPMENT AND IMPLEMENTATION PROCESS

DAIRY INDUSTRY

Background

Pakistan is among the five largest dairy industries in the world. With an estimated 28 billion liters of milk produced and average consumption at nearly ½ liter per day, the industry generates income for over 30 million farmers²⁸.

Dairy industry constraints include: low productivity; seasonality in milk supply; a fragmented distribution system; lack of mechanization, automation and refrigeration; and unhygienic handling that leads to poor quality milk, well below international standards. Demand is growing much faster than supply, yet only 45 percent of production actually makes it to the market with virtually no exports from the sector.²⁹

Low productivity is the result of the fragmented farm system, uninformed species selection, poor cattle breeding and rearing, substandard shelters and low energy (water/feed) inputs. Animal productivity is well behind other major dairy producers. Pakistan has three times the animals that Germany has, but the yield is one-fifth of Germany and one-third of New Zealand, representing a significant loss in potential economic and social value.³⁰

Milk harvesting is almost exclusively by hand. While milking occurs twice per day, only the morning milk (60 percent of potential output) is able to be distributed and sold; the remaining milk must be consumed on the farm or thrown out. Of the milk that is sold by farmers, an additional 15-19 percent is wasted en route to market due to spoilage from lack of proper cooling, storage, and transport systems. In total, 55-60 percent of current milk production is lost from potential income generation and value addition.³¹

Most dairy distributed and sold in Pakistan is still fresh milk. However, processed milk consumption is growing at above 20 percent per year. Of the different types of processed liquid milk, pasteurized milk and UHT milk in tetra packs are by far the most popular products. Yoghurt, butter, cheese and ice cream represent a small proportion of the processed dairy products. The informal sector produces lassi (a drink from boiled and/or raw milk), which is very popular in summer. Other common indigenous milk products are boiled milk and sweets produced by condensing liquid milk, such as khoya (condensed milk with sugar).

Only 3-4 percent³² of total production is processed and marketed through formal channels. For the other 97 percent, an extensive, multilayered distribution system of middlemen has evolved to supply milk produced for immediate consumption. “Katcha dodhies” collect their milk from villages and

²⁸ IFCN, 2003.

²⁹ Pakistan Smallholder Dairy Production and Marketing, R.H.Raja. Nestle is currently exporting to Afghanistan but in small volumes.

³⁰ IFCN, 2003.

³¹ Industry estimates from public and private sector experts across the dairy industry, 2005.

³² Industry estimates, 2005.

either sell to the local market or to “Pacca dodhies.”³³ Pacca dodhies then supply milk to distributors and retailers in urban areas —“gawallas” — and dairy processors. The gawalla supplies milk directly to urban and rural households.

As the result of a complex and distorted collection and distribution system, current milk quality and safety is significantly below international standards. Milk handling processes in the traditional system are extremely unhygienic and there is no enforcement of standards, resulting in poor quality products. In order to keep milk temporarily fresh, middlemen commonly add ice to the milk, which results in dilution of milk solids by up to 30 percent and often micro contamination due to poor quality water in the ice. Compounding the problem, the middlemen attempt to counter the dilution by adding vegetable oil, whey powder and other ingredients to improve the fat content of the milk. Antibiotics and peroxide are also often used as preservatives. These adulterating practices are unregulated.

A long tradition of dairy consumption, a sizeable domestic market, high per capita rates, and as-yet unexploited opportunities for processing and value-added products present significant potential for increasing both the economic and social value of the dairy industry. However, in order to develop the industry will have to address low farm productivity; an informal, fragmented and debilitating distribution system; and poor quality milk. It is in this context, that the Dairy Strategic Working Group (SWOG) was formed under PISDAC.

The SWOG Process

Dairy SWOG Evolution and Structure

The Dairy Strategy Working Group (SWOG) was formed in August 2004 as a small group of private sector stakeholders who wanted to enhance the dairy industry’s competitiveness. The convening of members was largely managed through SMEDA and Mr. Sajjid Hassan, a consultant hired by PISDAC. Prior to SWOG formation, the industry was mainly influenced by two industrial giants. There was a Dairy Association, but it was not very effective and did not represent the entirety of the industry value chain. The industry perceived the Government to be a major obstacle in their development. The attitude of industry members was characterized by mutual mistrust and disharmony. They were not willing to share experiences and best practices. The initial meetings were thus aimed at developing a working relationship between several small and medium size industry players.

The group that came together initially consisted of SMEs, processors, equipment manufacturers and suppliers. They banded together under the banner of “I.Q.” or improved quality milk, an area that remains the SWOG’s focus to this day. SMEDA worked closely with J.E. Austin during the initial phases of the SWOG process. Several months were spent overcoming issues of mistrust among members and convincing the group that the SWOG process and strategy development were worthwhile. (The visit of the US Ambassador in September 2004 strengthened the group’s confidence in the SWOG process. Following this meeting, several very large players who were not previously present on a regular basis, if at all, involved themselves in the SWOG process.) As the SWOG came together, it completed an initial industry diagnostic and then began the strategy formulation process.

³³ Each Pacca dodhie contracts 8-500 katcha dodhies.

With assistance from SMEDA, the SWOG started its dialogue with the public sector in December 2004. They made a presentation to the Minister of Industries, Production and Special Initiatives. This was the first time that the dairy industry had engaged with the Government from a single platform. The SWOG formed core working groups as its strategy development process progressed.

In February 2005, the SWOG undertook a benchmarking study tour to Australia and New Zealand. The tour was assisted by PISDAC-provided technical assistance. The two countries were selected because, like Pakistan, their dairy industries are not subsidized. The visit helped the SWOG understand the sector's position in the global dairy industry and identify gaps in the value chain. The trip also helped in creating useful linkages with dairy industries and training and R&D institutions in New Zealand and Australia. Following the study tour, with continued assistance from a technical expert, the SWOG completed the benchmarking study and gap analysis on which the strategy was based.

As the strategy development continued, the SWOG's membership also grew to include representatives from all parts of the value chain as well as NGOs and related and supportive industries and academia. SWOG meetings also became more regular and were convened at least once or twice a month.

There was continued improvement in the quality of the public-private sector dialogue engendered by the SWOG formation and strategy development process. Provincial and National level officials began to interact with the SWOG and participate actively in the strategy development process. A number of SWOG meetings were held at the ministerial level with the Ministry of Industries, Production and Special Initiatives; the Ministry of Food, Agriculture and Livestock; and with the provincial governments.

Technical assistance was provided to assist in developing the strategy and defining the strategic initiatives. Within a year of its inception the SWOG had developed a strategy which was shared with and agreed to by the private sector; the Ministry of Industries, Production and Special Initiatives; and the Ministry of Food, Agriculture and Livestock. A final strategy presentation was agreed upon and presented to the Prime Minister in early June 2005. The GoP agreed at the June meeting to financially support the SWOG strategy and to recognize the SWOG's Initiative to form a sector management company. The Pakistan Dairy Development Company (a.k.a. "Dairy Pakistan") was formed to help coordinate the SWOG strategy and manage its implementation. The GoP agreed to provide USD 8 million in grants and USD 32 million in lending authority from commercial banks to be matched by private sector investment on a 30:70 government-to-private ratio.

A "white paper" was drafted identifying a set of second-generation reforms that would contribute to greater competitiveness. Several of these policy recommendations were subsequently approved by the Government. These included elimination of duties on farm cooling tanks and reduction in duties for packaging material.

In January 2006, SWOG members visited India to strengthen their gap analysis and to identify additional linkages. The SWOG met with Amul and Mother Milk to learn from their experiences and further refine the strategy.

The PISDAC project has facilitated public-private dialogue on dairy industry issues, broadening its scope to encompass representatives from several critical ministries, all levels of government including provincial governments and departments, and policy and regulatory agencies. The SWOG has expanded to include representatives from the Ministry of Food, Agriculture and Livestock;

provincial authorities responsible for dairy and dairy-related activities; PSQCA; small farmers; breeders; farm cooling tank manufacturers and importers; financial institutions; feed and breeding service industry representatives; NGOs such as the Rural Development Foundation, the Punjab Rural Support Program, and training and research centers from Karachi, Sukkur and other areas.

The SWOG has formed a Training Core Group, an Equipment Manufacturers Core Group, a Small Farmers Core Group and a Middlemen's Core Group to ensure that key components of the dairy value chain are considered.

The SWOG is moving towards developing more initiatives to address the needs of small farmers. These include studying the possibility of introducing cooperative milk farming in Pakistan, forming a farmers' core group, introducing training initiatives focused on small to medium size farmers, and providing access to finance to small farmers for installing farm cooling tanks.

Workforce development has been identified as a critical area by the dairy SWOG. The Training Core Group is in the process of developing a strategy to address the skill gaps, securing input from both public and private sector stakeholders on their specific labor training needs. Under PISDAC II, a number of experts from academia have been included in the dairy SWOG and have been very active in shaping its strategy. The industry now views members from academia as a critical part of the SWOG and seeks their input on various initiatives. For instance, the dairy industry is currently working with academia to develop a blueprint for establishing a sustainable and demand-driven practical training center at the University of Veterinary & Animal Sciences, Lahore.

Technical Assistance to the Dairy SWOG

Technical assistance was provided to assist in developing the strategy and defining the strategic initiatives. Anthony Christiansen was engaged four times during the span of the project. From January to March 2005, he helped organize and participated in the SWOG's benchmarking study tour to New Zealand and Australia. From September to October 2005, he helped the SWOG in developing the organizational structure and business plan for Dairy Pakistan. From October 2005 to January 2006, he served as Dairy Pakistan's interim CEO. Mr. Christiansen was engaged again in August 2006 to assess the progress and achievements made by the SWOG to date.

Sajjid Hassan has been engaged with the project to coordinate SWOG activities and ensure that all parts of the value chain are well represented. Inam-ur Rehman was engaged to assist in developing an HR policy for Dairy Pakistan and to assist in initial hiring.

Several consultants were hired to help the SWOG define their strategic initiatives. Colin Busustow was engaged to conduct a study of farming conditions and practices in Pakistan and provide recommendations for improving profitability on a range of dairy farms. The analysis included benchmarking current farm production/economics, identification of limiting factors and recommendations on how to overcome them. Sardar Adnan was employed to develop Standard Operating Procedures for Model Collection Centers. He also assisted Colin Busustow in studying farming practices.

Fergusons Associates (Pvt) Ltd was engaged to develop a white paper for policy reforms. Representatives from PTC+, a Dutch training institution, visited Pakistan and conducted a study to explore the possibility of establishing a Center of Excellence and identified potential partners from academia. Dr. R.S. Khanna, a senior employee of the Gujarat Cooperative Milk Marketing Federation (Amul), has been engaged to work with the National Rural Support Programme to develop a pilot

project to replicate India's Cooperative farming model in Pakistan. His input will be critical in helping the project increase income earning opportunities for small farmers. Raja Razaqat from the NRSP is working as his local counterpart. Dr. Faqir Muhammad is working to assess the potential of identified milk pockets and to help poor farmers of Balochistan increase their income earning opportunities through improved market access.

The Dairy Strategy

To upgrade the industry, the Dairy SWOG has formulated a comprehensive strategy across four tracks of strategic initiatives: raising productivity, reshaping the dairy market, improving standards, and developing the workforce. The core of the strategy will be focused on raising productivity. The industry will:

- Establish model commercial dairy farms across a full range of farm sizes to increase overall farm productivity by demonstrating new technologies and best practices.
- Upgrade rural and urban supply chains by facilitating investment in chilling tanks.
- Investigate modern technologies, systems, and underlying seasonal economics of dairy production to better inform investment decisions and correct market distortions.
- Expand supply pockets to increase the milk supply and create new income-earning opportunities.
- Improve the quality of feed to ensure better quality of milk.

To improve the business environment, workforce quality, and industry organization, the SWOG will:

- Explore the potential for introducing minimum pasteurization in Pakistan.
- Improve and enforce existing food safety standards in line with international standards.
- Promote policies which will support the development of an expanding export industry.
- Provide practical training to farmers on modern farming practices.
- Raise the capacity of training institutions to provide required training and qualifications.
- Establish a Center of Excellence for Dairy.

Lessons Learned from the Dairy Experience

Key lessons that emerged from the PISDAC II dairy industry experience are:

- The industry can only move forward if its members come together on a common platform with one voice.
- Study tours are critical for bringing the SWOG together and motivating a mindset change.
- Achieving results depends on working with the entire value chain and on a national basis.
- All initiatives require regular monitoring during the implementation phase, followed by audits to register and correct any deviations from agreed-upon deliverables.
- As the SWOG is always expanding to include stakeholders from additional provinces, the dairy strategy document must be periodically revised to accommodate varying experiences. For example, emphasis has been added on engaging rural women more effectively to contribute towards the development of the dairy sector in Pakistan.
- Technical assistance is essential to galvanize and direct the SWOG.
- It is critical to continue to engage with the government on the basis of a competitive strategy.
- There is a critical need to invest in workforce development initiatives and innovation.
- Training programs for workforce development must be tailored to the needs of the market.
- The middle men need to organize to improve the system and establish quality standards.

- There is a need to secure more second-generation policy reforms in order to provide an enabling environment, and to continue to build the capacity of local groups to engage in industry-government dialogue.
- Academia has a vital role to play in the sector's development.
- When the sector management company is established, it is imperative to define the roles and responsibilities of SWOG and the company at the outset. The investment to be made by the public and private sectors must be made clear, and a timeline must be established for the company to become self-sustaining.

Future Plan for the Dairy Sector

In the next phase, PISDAC will focus more on workforce development, policy reforms, development of new supply pockets and expanding the SWOG into additional geographic areas. It was agreed that core groups will continue to focus on their particular activities, and that general SWOG meetings would only be called when a topic of discussion requires a larger meeting.

PISDAC will continue assisting the SWOG in designing and planning their priority initiatives. Once a detailed proposal for an initiative is finalized and funding sources are identified the input of PISDAC team will be limited to providing technical assistance in structuring the approach, assisting with training and disseminating the results so as to encourage other industries to do similar things. Although Dairy Pakistan will play a leading role in the implementation of existing initiatives based on the SWOG's strategy, PISDAC and the Dairy SWOG will continue to provide technical input. PISDAC will also provide technical assistance in conducting cost-benefit analyses of suggested policy reforms and developing reform proposals.

The project will also engage the SWOG in identifying new initiatives, such as publishing dairy prices daily through multiple media. Transparent price discovery could be of benefit to small farmer, and if quality premiums are published, these premiums could also encourage quality milk.

The project will work with the SWOG to ensure that it remains a cohesive, fully representative and sustainable platform. PISDAC will continue to assist the SWOG and its core groups to strengthen themselves and to include additional members. The project will continue to facilitate the SWOG's interaction with the public sector and with Dairy Pakistan, and will ensure that its strategy and vision are disseminated to a wider audience.

GEMS AND JEWELRY

Background

Pakistan's Gems and Jewelry sector consumed 170 tons of gold in 2004.³⁴ The annual local demand for gold jewelry is estimated at a value of USD 1.2 billion.³⁵ Demand is predominately driven by 22-

³⁴ According to World Gold Council estimates, total consumption of gold in Pakistan was 81 tons in 1997 and 120 tons in 2001, reflecting 12 percent growth per annum. Based on this growth rate, the estimate for 2004 is 170 tons. According to some SWOG estimates, consumption of gold in 2004 was 200 tons.

³⁵ This is a conservative estimate based on a methodology developed by the SWOG. It takes into account retail turnover during the year. Some industry sources estimate total demand at USD 2 billion.

karat wedding jewelry. Accumulation of gold jewelry is also perceived as a long-term investment. The total number of persons employed in the sector is estimated at 800,000.³⁶ Total exports for the Gems and Jewelry sector were USD 28 million³⁷ in 2004, representing 0.2 percent of Pakistan's total exports for the year.³⁸

Although jewelry manufacturers and retailers are spread throughout Pakistan, Karachi and Lahore are the main hubs for these activities. There are more than thirty major cities and nearly three hundred smaller cities/mandi³⁹ towns where jewelry manufacturing and trading clusters cater to domestic demand. In addition, there are at least 45,000 villages where jewelers operate one-stop shops, manufacturing and selling units to meet the demand of rural population.

Gemstone deposits are concentrated in NWFP, the Northern Areas and Balochistan. Most gemstone processors are clustered in Karachi and Peshawar (Namak Mandi), with smaller clusters in Lahore, Quetta and Islamabad.

Despite its abundant reserves of precious and semi-precious gemstones, and its rich history of jewelry craftsmanship, Pakistan has been unable to develop an internationally competitive gems and jewelry industry. Capitalizing on its vast natural resources, low labor costs, skilled craftsmen and growing national and international demand, Pakistan has the potential to position itself as a competitive hub for precious stone cutting and jewelry manufacturing. Developing this potential will have a significant impact on Pakistan's economy in terms of increased employment and entrepreneurship, income generation, export revenues, and poverty alleviation. Consisting of mainly small and medium entities, growth of this sector will also have positive externalities for social indicators such as health and education.

In general, Pakistan's Gems and Jewelry industry suffers from limited investment in research, product development and training; low levels of technology; outmoded mining techniques; underdeveloped lapidary facilities and skills; high raw material costs; poor international marketing and branding; underdeveloped designing capabilities; limited linkages with domestic and international support infrastructure; limited identification and certification; and lack of hallmarking.

The Jewelry industry is highly fragmented, with very few players having complete in-house production facilities. Most of the players outsource manufacturing to small vendors.

It is in this context that the Gems and Jewelry SWOG was formed.

³⁶ Industry sources.

³⁷ This statistic is taken from the UNSTATS website. According to the Export Promotion Bureau, gems and jewelry exports between July 2004 and May 2005 were USD 19.8 million (jewelry: 15.6m; gems: 3.3m), down by 25 percent from the previous year. According to the All Pakistan Commercial Exporters Association, gems exports in 2004 were USD 10 million. According to industry sources, gems exports are higher due to the informal gemstones trade.

³⁸ According to the United Nations Statistics Division, Pakistan's total exports for 2004 were USD 13.3 billion.

³⁹ market.

The SWOG Process

G&J SWOG Evolution and Structure

The process of SWOG formation was initiated in July 2004. The J.E. Austin Associates team visited different Gems and Jewelry clusters in Karachi, Lahore and Peshawar in October 2004 and engaged their leadership in a dialogue. These clusters had their own separate associations and there was minimal communication among them. Initial efforts were focused on bringing in members of the entire value chain representing all regions of Pakistan. As the group came together, inter-cluster visits were arranged to forge an understanding between SWOG members of different clusters. One example was the visit of SWOG members from Karachi and Lahore to the Gems Cluster in Peshawar. During this trip, SWOG members met with different gem traders in Namak Mandi (the main gem trading hub in Peshawar), and visited the Gems and Gemological Institute of Pakistan (GGIP). Another similar initiative was the trip to the Gems and Jewelry cluster in Karachi, during which gem-cutting facilities and major jewelry retailers were visited.

Through these visits and meetings, the SWOG was gradually expanded to include representatives from gems trading and mining, jewelry manufacturing, jewelry retail and wholesale, training institutions, technical service providers, raw material suppliers and other allied industries who agreed to form a strategy working group to address how the industry could upgrade itself. Because the industry is highly fragmented, the first few months were spent overcoming issues of mistrust and regional divisions among the members of the industry as well as other stakeholders. As the group established a cohesive platform, its membership expanded to include representatives from the public sector as well as academia. Drawing in training and R&D institutions required overcoming the industry's initial reluctance to accept the value of academia in sector development. It also involved persuading competing institutions to collaborate and facilitating academia's conversation with the industry. The SWOG began to meet on a regular basis, at least once or twice a month. Core groups were established to deal with specific aspects of strategy development, i.e. training, R&D, marketing and branding, policy reform, design, and manufacturing.

J.E. Austin Associates worked closely with SMEDA throughout the SWOG process. At the inception of the project, SMEDA allocated staff members to work with PISDAC. SMEDA shared their existing network of industry stakeholders to mobilize the initial SWOG meetings. SMEDA's outreach throughout Pakistan assisted PISDAC in expanding the SWOG's regional representation. J.E. Austin was also able to draw upon SMEDA's research for its industry diagnostics. On the policy level, SMEDA served as the conduit between the SWOG and the Government. It assisted the SWOG in developing and submitting its policy reform recommendations to the concerned government departments.

The SWOG initiated its dialogue with the public sector in October 2004 through its presentation to the Minister of Industries, Production and Special Initiatives. The meeting with the Minister and a discussion among industry stakeholders afterward that was facilitated by J. E. Austin Associates helped the SWOG to decide to keep gems and jewelry combined on one platform, and to view itself as a constructive platform working towards sector upgrading. The initial stages of strategy formulation included industry diagnostics and broad discussions on how to move forward. The process also benefited from a partnership between J.E. Austin (USAID contractor) and SMEDA.

In May 2005, the Export Promotion Bureau (EPB) provided two UK experts, one on hallmarking and one on gems. EPB agreed to have the SWOG coordinate the visits of both experts. PISDAC then rehired the hallmarking expert, who organized a study tour to India for members of the SWOG in

order to benchmark Pakistan against regional competitors and to observe India's hallmarking practices. With the support of a US expert, a further benchmarking study tour was undertaken in June 2005 to the US, where the SWOG visited two major gems and jewelry shows and met with a number of experts. The US study tour exposed the SWOG to best practices and further strengthened ties among the members. With support from a PISDAC-provided technical assistant, the SWOG was able to complete its benchmarking study. The SWOG then identified strategic initiatives and formed core groups to develop them, again with PISDAC technical assistance.

Two events provided a major impetus for the SWOG. First, in August 2005, the Government announced major policy reforms for the Gems and Jewelry Sector in response to the SWOG's recommendations. The Gems and Jewelry sector was awarded industry status; the time permitted for the export of jewelry made from imported gold and for the remittance of the related proceeds was doubled; the Custom Valuation Committee that controlled clearance of gems and jewelry before export was abolished; import duty and sales tax on gemstone extraction and processing machinery were reduced to zero, and the Pakistan School of Fashion Design (PSFD) was awarded university status. The policy reforms demonstrated to the SWOG that approaching the government as a unified group with a clearly laid out strategy could achieve results that individual, unplanned efforts could not.

The second event was the Bangkok Gems and Jewelry Fair in Thailand in September, 2005. Prior to the show, the SWOG met with the Prime Minister, strengthening their confidence in the SWOG process. The Bangkok show was the first time that Pakistan exhibited as a well organized, integrated group with a branded presentation. The SWOG launched Pakistan's national branding initiative under the umbrella of Gems and Jewelry Pakistan. With PISDAC-provided technical assistance, the SWOG developed highly professional marketing material including a brochure and CD on the Pakistani Gems and Jewelry industry. The show resulted in:

- Sales orders in excess of USD 4 million
- Linkages with leading training institutes such as GIA and AIGS as well as prominent manufacturing companies
- The launch of Pakistan's repositioned Gems and Jewelry industry in the international market.

The Gems and Jewelry SWOG's core groups continued to meet on a regular basis to finalize their strategy and strategic initiatives. The SWOG developed working relations with the two key existing trade associations: the All Pakistan Commercial Exporters Association (APCEA) and the All Pakistan Gems Manufacturers and Jewelers Association (APGMJA).

The SWOG presented their final strategy to the Minister of Industries, Production and Special Initiatives on March 29, 2006. The Minister supported the industry's strategy and agreed to co-fund the SWOG's participation in the 2006 Bangkok show and its initiative to form a Sector Management Company. He also committed to providing his support in obtaining approval for additional policy initiatives.

As part of a strategic initiative, the Asian Institute of Gemological Sciences has agreed to affiliate with the Gems and Gemological Institute of Pakistan and the two parties have signed an MoU to formalize their decision. Upon advice from the SWOG, GGIP agreed to broaden its board of directors to include representatives from all provinces. They also agreed to establish a Gemology Training Institute in Karachi.

The SWOG presented their proposals for sector management company formation and a three-year plan for participation in trade fairs to the Pakistan Industrial Development Cooperation (PIDC)

board on May 11, 2006. The meeting was chaired by the Minister of Industries, Production and Special Initiatives. The board agreed with the overall strategy and agreed to fund the SWOG's initiative to form the Sector Management Company and participate in the Bahrain show in November 2006. The Pakistan Gems and Jewelry Development Company (PGJDC), established under Section 42 of the Companies Ordinance, 1984, is intended to be a formal platform through which the SWOG can work to upgrade the Gems and Jewelry Sector. The SWOG has nominated members of the Board of Directors. These include one representative each from Islamabad, Balochistan, NWFP, and Punjab; and two representatives from Sindh along with the chairmen of APCEA and APMJA.

The SWOG has grown to include the Pakistan Standards and Quality Control Authority (PSQCA) as a potential partner for implementing/endorsing quality standards for the sector's hallmarking initiative. It has also grown to include the Pakistan National Accreditation Council as a potential partner for establishment of gem labs in different regions of the country, and National Industrial Parks as a potential partner for the establishment of a Gems and Jewelry Park in Karachi and subsequently in other regions of the country. A senior banker from the Pakistan Banks Association has also joined the SWOG to assist in developing business plans and identifying sources of funding for pilot projects.

SWOG members were able to bring competing APMJA factions together on one platform. SWOG members have also agreed to work with the EPB and the Government of Pakistan to reopen a defunct training institute in Karachi.

With the assistance of the SWOG, the PSFD successfully held a one-month course in jewelry design and manufacturing for 25 students in the summer of 2005. Two female students were selected from this course to participate in a six-month training program at AIGS in Thailand. In addition, Beaconhouse National University (BNU) has started a degree program in jewelry design, the first of its kind in Pakistan.

PISDAC has facilitated the public-private dialogue by drawing in critical federal ministries, all levels of the government, and research and development institutions. Moreover, it has come to view academia as a significant partner in the sector development process. In addition to the relevant ministries — including Industries, Production and Special Initiatives; Commerce; Finance; Science and Technology; and Petroleum and Natural Resources — other important players that PISDAC has engaged are the Pakistan Council for Scientific and Industrial Research (PCSIR); the Higher Education Commission; the Pakistan Institute of Development Economics (PIDE); the Pakistan Institute of Nuclear Science and Technology; training institutes such as the PSFD, Lahore University of Management, and BNU; GGIP, the EPB, and the Geological Survey of Pakistan.

Technical Assistance to the G&J SWOG

Technical assistance was provided to assist in developing the strategy and defining strategic initiatives. Sybille Schempf, an international marketing expert, was engaged to help the SWOG develop an effective marketing and branding strategy. She worked with SWOG members to bring them up to date on the latest international design requirements. She visited gems and jewelry clusters in Balochistan, NWFP, Punjab and Sindh to observe and analyze the sector and its potential. Ms Schempf assisted the SWOG in launching its national branding initiative at the Bangkok Gems and Jewelry Fair in September, 2005. She helped them to develop appropriate products, prepare branding material and organize the SWOG's participation to ensure a successful launch. She also assisted the SWOG in developing critical linkages with key industry leaders and training institutes in

Thailand. Ms Schempf has visited Pakistan on five different occasions to work on the SWOG's marketing initiative.

Irwin Gross, a US-based technical expert, was engaged to assist with the SWOG's study tour in June 2005. Peter Raw, an international hallmarking expert, led the SWOG on their India Study Tour and assisted in developing the hallmarking initiative. He provided a roadmap on how to implement hallmarking in Pakistan and worked with PCSIR to establish a model assaying and hallmarking facility. Mr. Raw also outlined a road map for drafting a Hallmarking Act and constituting a hallmarking control body. Mr. Raw was engaged twice over the duration of the project to assist with the hallmarking initiative.

Werner Assmann, an international jewelry expert, assisted the SWOG in undertaking pre-feasibility work to facilitate the establishment of jewelry manufacturing and training centers. During both his visits (November 2005 and August 2006) he conducted jewelry manufacturing training workshops in Lahore and Karachi.

The G&J Sector Strategy

The Strategy focuses on upgrading the entire value chain through raising productivity, improving marketing and branding, providing an enabling business environment, investing in workforce development and strengthening industry organization and supporting infrastructure. Strategic initiatives include creating a Common Facility Training and Manufacturing Center (CFTMC), establishing Gem Labs and Gem Exchange Centers, introducing Assaying and hallmarking in Pakistan, re-positioning the industry through better marketing and branding, securing policy reforms, upgrading the workforce by creating linkages with international training institutes, developing the R&D capacity of local institutes, and strengthening industry management and logistical infrastructure.

The strategy is expected to have significant impact on value added, productivity, income levels and exports. It is intended to reposition the gems and jewelry industry from a cost-based sector to a high value-added, competitive brand in the global market.

Lessons Learned from the G&J Experience

Key lessons that emerged from PISDAC II in relation to the G&J industry are:

- The industry can only move forward if its members come together on a common platform with one voice.
- Engaging with the government on the basis of a competitive strategy is far more effective than individual, unplanned efforts seeking concessions.
- It is important to work with the entire value chain and on a national basis.
- Study tours are instrumental in bringing about a change in mindset that serves as a catalyst to move forward. The sooner these study tours can be arranged, the more quickly a newly formed SWOG can be energized.
- There is a critical need to invest in workforce development initiatives and innovation.
- Training programs for workforce development must be tailored to the needs of the market.
- There is a need to secure more second-generation policy reforms in order to provide an enabling environment, and to continue to build the capacity of local groups to engage in industry-government dialogue.
- Academia can and should play an integral role in the sector development process.

Future Plan for the G&J Sector

PISDAC III, the 24-month follow-on project, will allow the Contractor and its partners such as SMEDA to help the SWOG to deepen existing initiatives in the following ways:

- Provide technical assistance for the planning and structuring of common training facilities
- Facilitate the identification of financial sources for implementing the strategic initiatives
- Expand and deepen impacts and benefits of SWOG initiatives in regions of extreme poverty such as Balochistan, FATA and FANA
- Assist in identifying and securing additional policy and institutional reform initiatives.

The Contractor will continue to provide initiative-based TA to undertake research and workforce development for the priority initiatives. These include the CFTMC(s), gems lab/lapidary facilities, branding and marketing, and hallmarking/assaying. PISDAC will provide assistance in preparing the groundwork (research, feasibility reports, business plans) for remaining initiatives outlined in the strategy, i.e. boutique mining, market and industry research, strengthening the logistics infrastructure, work force needs assessment analysis, and any other supporting initiatives that may emerge during the project period. The project will assist the SWOG to identify potential sources of funding, i.e. CSF, banks, multilateral institutes, and donor agencies, and will facilitate linkages between these and the SWOG. The project will provide linkages with technical assistance and sources of funding to private sector investors who are interested in upgrading their facilities or investing in new projects.

PCSIR is working with the SWOG to establish a model assaying and hallmarking facility in Lahore. It has been decided that a group composed of PCSIR and private sector representatives will be sent to the London Assay Office (LAO) for formal training in assaying/hallmarking. The assaying facilities at PCSIR-Lahore and Karachi are scheduled to be operational after completion of training provided by LAO. The SWOG is currently drafting a Hallmarking Act with assistance from a legal expert. The SWOG is also preparing a proposal for constituting a hallmarking control body. A SWOG member is working to establish a private assaying/hallmarking facility in Karachi. PISDAC will provide technical assistance in planning for the initiative.

PISDAC will assist GGIP and AIGS to sustain their affiliation by ensuring continuous SWOG involvement and providing technical assistance. Similarly, the project will continue working with the SWOG in its branding and marketing initiatives. The SWOG will receive help to participate in the Bangkok Gems and Jewelry Fair to be held in September 2006, and the Bahrain Show in November 2006. PISDAC will provide a technical assistant for branding and show participation.

The PISDAC project will assist in grassroots workforce development by assessing the immediate training needs of the industry, identifying skills gaps and arranging short-term training workshops/seminars to fill the gaps. The project will also assist the SWOG to develop innovative solutions/models for addressing work force needs in the long run. The project will assist the SWOG in identifying policy initiatives related to workforce development, identify possible constraints and develop policy recommendations to address these constraints. The project will assist the SWOG to strengthen linkages between training providers related to the gems and jewelry sector and the industry to ensure alignment between supply and demand. The project will further assist the SWOG in presenting the additional policy reforms identified during the current phase to the Government. It will also assist the SWOG in continuing and strengthening its policy dialogue with the government in the form of continuous policy analyses and recommendations. PISDAC will continue to strengthen the SWOG's capacity to implement their strategic initiatives and provide support to the sector.

MARBLE AND GRANITE

Background

Pakistan has enormous reserves of marble and granite. Currently over 40 types of natural color marble are mined, and there are 160.2 million tons of marble reserves in the country, out of which 98 percent are in Balochistan and NWFP.⁴⁰ Granite reserves are estimated at 414 million tons in the Northern Areas alone, with more reserves spread over NWFP, Balochistan, and Sindh.⁴¹ In 2004, nearly 2000 quarries and 1500 processors produced an estimated 100 million square feet of marble and granite, of which 97 percent was sold domestically, earning a total of PKR 1.7 billion.⁴² Exports were just 3 percent of total sales but earned PKR 1.34 billion, over 25 times the unit value of domestic sales.⁴³

The Marble and Granite Industry in Pakistan is severely underdeveloped. At the quarrying level, productivity suffers from indiscriminate blasting, poor quarrying techniques and lack of infrastructure for handling and transportation. The processing industry suffers from low capacity utilization, lack of modern technology and skills and limited value added. Even in the domestic market, the final product is uncompetitive compared to lower priced, higher quality imports.

A value chain analysis recently conducted by the industry shows that 73 percent of the potential volume is wasted at the extraction and transportation stage due to underdeveloped quarrying methods and antiquated technology. Stone that is extracted through indiscriminate blasting is inconsistent and in irregular shapes. Of this, 3 percent is cut into square blocks for export. However, the process of cutting square blocks leads to 50 percent wastage, so only the half of the 3 percent is exported. Of the 97 percent that is locally processed, 45 percent becomes wastage, 5 percent is converted into slabs, and 50 percent is made into tiles. Nearly all the slabs and tiles are destined for the domestic market, with just 3 percent of slabs and 2 percent of tiles being exported. The cumulative wastage is 85 percent.⁴⁴

Although the industry currently represents a small fraction of the GDP and less than 1 percent of current exports, the potential to raise exports, earn foreign exchange, and deliver value to rural areas is immediate and significant. It is in this context that the M&G SWOG was formed.

The SWOG Process

M&G SWOG Evolution and Structure

The Marble and Granite SWOG was formed in September 2004. Prior to PISDAC efforts, the sector was marred by fragmentation and lack of communication. The SWOG was composed of leading industry stakeholders from across the value chain, including quarry owners, processors, retailers, exporters, academia, representatives of R&D institutions, machinery manufacturers and other allied industries. They represented the regions of Balochistan, NWFP, Sindh, FATA and

⁴⁰ Marble and Granite Sector Brief, Small and Medium Enterprise Authority, 2002.

⁴¹ There have been no recent studies, so actual reserves are unknown and may be significantly higher.

⁴² SWOG information.

⁴³ Export Promotion Bureau of Pakistan.

⁴⁴ Study: University of Peshawar, Center of Excellence in Geology (2004).

Punjab. In spite of major differences, stakeholders recognized the immense potential of the sector and the need to collaborate. Frequent meetings of the SWOG, at least once a month, brought the group together and created greater trust among them.

After the initial meetings of the SWOG, representatives of the public sector — including officials from the ministries concerned with industries, commerce, petroleum and natural resources, as well as the Director General Mines and Minerals — were brought onto the SWOG platform, creating a better understanding between the private and the public sector. SWOG participation was also broadened to include the All Pakistan Marble Industries Association.

In October 2004, Ihsanullah Khan of Trichmir Marble was chosen as Chairman of the M&G SWOG. Initial discussions were based on benchmarking international trends in practices and markets, and highlighting critical transitions in the local industry related to imports and the development of local markets and clusters. Progressive stakeholders who had conducted in-house research on the operational economics of quarrying and processing and had considerable experience in working in different regions of Pakistan were the main contributors to these discussions.

The SWOG made a preliminary strategy presentation to the Minister of Industries, Production and Special Initiatives in November 2004, focused on improving quarrying productivity through Model Quarries. The Minister appreciated the focus of the SWOG and proposed that he would support their strategy. As the strategy continued to evolve, core groups were formed to further define strategic initiatives.

There was considerable asymmetry of information among stakeholders. Many were unaware of the importance of quarry prospecting and planning and upgrading technology to improve productivity. In December 2004, the SWOG went on a study tour to visit a quarry being developed using modern quarrying methods by one of the SWOG members in Balakot. The tour was critical to building a consensus on the need to support a Model Quarry Initiative.

In March 2005, Urbain Heirbaut, an international stone expert, came to Pakistan to determine the sector's strategic potential. In May 2005, assisted by Mr. Heirbaut, the SWOG went on a benchmarking study tour to Italy. SWOG members also participated in an international Stone Fair at Carrara. The SWOG observed a highly integrated value chain supported by a long tradition of quarrying and stone application, and sustained investments in innovation and value addition. The tour proved to be a major eye-opener for the SWOG and helped them benchmark themselves against industry leaders. After the study tour, the SWOG completed its benchmarking and gap analysis.

From mid- to end- 2005, the SWOG worked to define and prioritize its strategic initiatives. In the third quarter of 2005, the Model Quarry Core Group met with the Director General of Mines and Minerals and Geological Survey of Pakistan officials for possible assistance in terms of core drilling and surveying services. The Common Facility Training Center (CFTC) initiative was identified at a SWOG meeting with USAID Director Lisa Chiles in mid 2005. The SWOG CFTC core group met in the following month to finalize a list of needed machinery and developed a rationale for the pilot project. The CFTC core group also employed Mr. Heirbaut's help in getting machinery quotations for the development of the FATA CFTC proposal.

The SWOG also involved the European Union in its strategy development process. As a result of this dialogue, the EU initiated an asset mapping exercise for the M&G sectors in Balochistan, Sindh and NWFP.

A landmark event for the SWOG was the abolishment of import duty and sales tax on quarry equipment and processing machinery. These reforms were a direct result of the public-private dialogue initiated from the SWOG platform.

Another major landmark for the SWOG was the involvement of the University of Peshawar Center of Excellence as a supporting institution. Professor M. Riaz, a local geologist, played an active role in formulating an outline for the training course proposed by the SWOG as part of workforce development for the Model Quarry initiative.

In late October, 2005 the SWOG chairman went on a strategy-selling tour across Pakistan. Presentations were made to stakeholder, related and supporting institutions in Quetta, Karachi, Peshawar and Islamabad.

In December 2005, the SWOG presented their strategy to the Minister of Industries, Production and Special Initiatives. The SWOG engaged with the media to disseminate its strategy within all regions and internationally. Regional SWOG Core Groups were formed to focus on disseminating the sector strategy to a broader audience and win support for the SWOG's strategic initiatives. The SWOG also increased its interaction with Provincial Governments to better influence mining policies.

In the first quarter of 2006, SWOG participation broadened with the inclusion of a representative from the Pakistan Banks Association. The objective of including a banker was to assist the SWOGs in developing business plans and feasibility reports. Upon invitation from the Minister of Industries, the regional core group for NWFP/FATA presented its strategic initiatives for FATA. The Minister decided to include it in the GoP's plan for developmental interventions in FATA.

On March 30, 2006, a detailed presentation on the M&G strategy was made to the Pakistan Industrial Development Corporation (PIDC) Board, chaired by Minister of Industries, Production and Special Initiatives Mr. Jahangir Tareen. As part of the strategy, the SWOG proposed establishing a sector management company. PIDC acknowledged the potential of the marble and granite sector, and agreed to support the strategy as well as to provide operational funds of PKR 300 million to the proposed company, Pakistan Stone Development Company (PASDEC), for three years. PASDEC was set up in June 2006.

SWOG participation further broadened with the inclusion of additional representatives from Balochistan and Chitral. A country-wide tour by two PISDAC-funded short-term technical assistants, Urbain Heirbaut and Annapaola Gradizzi (an Italian quarry expert), was conducted on quarry and processing sites. The visits covered industry clusters in Chitral, Buner (NWFP), Balochistan, Sindh and Punjab. The exercise provided stakeholders with an opportunity to interact with the experts and helped disseminate guidelines for best practices. The visits were followed by three regional workshops intended to disseminate trip findings. The regional workshops conducted in Peshawar, Quetta and Karachi brought together several industry players and created consensus across a broader spectrum of industry representatives. The technical assistants met with appropriate representatives from the Geological Survey of Pakistan and the University of Engineering & Technology, Peshawar to assess workforce development and R&D needs of the sector.

The sector strategy was presented to the President and Prime Minister of Pakistan by SWOG Chairman Ihsanullah Khan on June 23, 2006. The presentation included an estimate of the funds required for the implementation of the SWOG's strategic initiatives. The President in principle

agreed with the strategy. He agreed to provide PKR .2 billion for three years for co-financing sector development initiatives outlined in the strategy.

Technical Assistance to the M&G Sector

The technical expertise provided by PISDAC included local and international consultants. International stone expert Urbain Heirbaut visited three times. He helped the Industry identify gaps and highlighted the importance of quality standards in the international market. In May 2006, a country wide tour of Pakistan was undertaken by Mr. Heirbaut, Mr. Gradizzi, and Professor Riaz. The consultants helped the SWOG to assess local quarries and provided guidelines on proper planning and prospecting of quarries. Three regional workshops were also conducted to disseminate the findings of the visit, creating greater awareness and highlighting the industry's potential.

The M&G Sector Strategy

The M&G strategy focuses on upgrading the entire value chain by:

- Establishing model quarries to increase the supply and quality of stone.
- Establishing common machinery pools to facilitate cluster development.
- Developing marketing databases on stone specifications to develop product information for international buyers.
- Securing regulatory and policy reforms to provide a more enabling environment and promote greater private sector investment.
- Conducting on-site practical training in modern quarrying practices and technology through a model quarry training program.
- Establishing CFTCs to train the workforce.
- Developing world-class prospecting and planning expertise to support future investment in the sector.
- Strengthening industry organization through a sector management company.
- Training local women in NWFP in mosaic manufacturing and initiating a mosaic manufacturing facility to provide them with income earning opportunities.
- Introducing a Quarry Internship Program to send qualified nominees to internship programs at international quarries.

The SWOG has also developed a strategic initiative to assist in the rehabilitation of areas of northern Pakistan devastated by the massive earthquake in October, 2005. They have decided to establish 10 mechanized model quarries for the Mansehra-Balakot regions to provide employment for the local population.

Lessons Learned from the M&G Experience

Key lessons that emerged from PISDAC II's work with the M&G sector are:

- The industry can only move forward if its members come together on a common platform with one voice.
- It is important to work with the entire value chain and on a national basis.
- Study tours are instrumental to changing mindsets and invigorating a static industry.
- Quality control must be made a priority in order to target the export market.

- A skilled workforce and technical expertise can only be developed through onsite and practical training programs. The workforce needs of the sector cannot be fulfilled through academic diplomas and certificate courses alone.
- Training programs for workforce development must be tailored to the needs of the market.
- Geologists, quarry masters and other technical people have a crucial role to play in the industry's development. The industry must be willing to employ the services of R&D institutions and other qualified professionals.
- Preservation of the environment is essential and blasting has severe consequences.
- Engaging with the government on the basis of a competitive strategy is far more effective than individual, unplanned efforts seeking concessions.
- There is a need to secure more second-generation policy reforms in order to provide an enabling environment, and to continue to build the capacity of local groups to engage in industry-government dialogue.
- Academia can and should play an integral role in the sector development process.
- Investment in innovation is a prerequisite for moving the industry forward.

Future Plan for the M&G Sector

PISDAC will continue working with the M&G SWOG to identify new strategic, policy and workforce development initiatives and to broaden and strengthen the SWOG. The SWOG core groups will vary according to the shifting focus and priority of initiatives.

Priority initiatives identified in Phase II will continue to receive assistance during their structuring and design phase. PISDAC will also assist in providing workforce development related to these initiatives. This will include developing essential linkages between educational institutes, R&D centers, and the public sector. PISDAC will provide technical support to the selected model quarries for initial prospecting and valuation for banks and private investors.

Preparatory work will begin on initiatives such quarry machinery pools, transportation, warehousing/shipping solutions, product information development for local/export markets, policy reforms to improve lease regulation/improvement in mining concession rules, and development of training programs in prospecting, quarrying and processing. The project will assist in developing management, workforce development and policy-related solutions for the SWOG. The project will strengthen the SWOG to ensure the implementation/management of their strategic initiatives as agreed to in the strategy paper. It will help SWOG become a more representative and broader platform for the industry. Initiative-related players will be inducted for a specific and focused approach towards priority initiatives. The SWOG core group will vary according to the shifting focus and priority of initiatives.

The SWOG will continue to act as an advisory body to PASDEC and will function as a think tank for the identification and development of new strategic initiatives.

ANNEX IV: SITUATION ANALYSIS OF THE PAKISTAN DAIRY INDUSTRY⁴⁵

INTRODUCTION

In the two years that the Pakistan Initiative for Strategic Development and Competitiveness (PISDAC) has been operating, significant progress has been made in laying a sound foundation for the sustainable development of the Pakistan Dairy Sector. The key success factors have been to develop a detailed Strategic Plan and to facilitate the establishment of a private sector-led advocacy organization, Dairy Pakistan, which will be instrumental in the ongoing sustainable development of the sector.

A number of the key initiatives are currently progressing in line with the Strategic Plan. Dairy Pakistan has taken full responsibility for the progress of the Model Farm and Model Collection initiatives. Other initiatives, such as workforce development, developing a farmer based cooperative system, and including the middlemen in the formal sector are being pursued under the auspices of the Dairy SWOG, with support from J.E. Austin Associates. This report will encapsulate the state of the sector at the beginning of the project and describe the process of forming an effective Dairy SWOG. The report also captures the current state of the industry, lessons learned and the way forward.

STATE OF THE DAIRY INDUSTRY – JUNE 2004

The State of the Industry as at June 2004 is demonstrated by the SWOT analysis below.

Strengths

- Large total milk volumes (32 billion liters annually, placing Pakistan among the top five producers in the world).
- High per capita consumption of milk (190 liters per capita/year).
- Consumption of milk and a range of dairy foods viewed within the culture as an important part of nutrition in families.
- Irrigation and fertile land widely available.
- Adequate labor available.
- NGOs established by GoP to enable more rapid responses than available through the public sector (e.g. Rural Support Programs).
- Major multinational companies such as Nestles, Tetra, and De Laval present, providing competition and international benchmarks.

Weaknesses

Planning and Benchmarking

- No accepted sector-wide strategic plans within the industry.

⁴⁵ Prepared by Anthony Christiansen, International Dairy Consultant; and Kashif Chaudhry, Dairy SWOG Coordinator.

- Little benchmarking of Pakistan against the international dairy sector.⁴⁶
- Accurate, useful data along each step in the value chain — such as economic data and figures for livestock, milk production, and consumption — unavailable.

Industry Structure

- No effective industry organizations or advocacy groups. Pakistan Dairy Association (a processors' group) unable to achieve reforms or contribute significantly to the development or improvement of the dairy sector.
- No structure at the farmer level to provide a voice for farmers and a channel for supply of services.⁴⁷
- Investment by donor organizations of limited effectiveness due to ineffective government departments and no central advocacy organization for the dairy sector.
- Atmosphere of mistrust among members of the dairy sector along all parts of the chain.

Farming and Processing

- Very large number of very small farms — about 9 million small farmers and an average herd size of three to four animals per household.
- Low productivity and profitability on farms.
- Poor rural infrastructure, particularly roads and electricity.
- Serious problems with milk quality due to adulteration and non-pasteurization. Only 3 percent of the total milk processed through the formal sector. Significant proportion of the remaining milk low to seriously poor quality.
- Inadequate supply of quality milk that would enable processors to grow, largely due to the costs of establishing a milk collection system keeping the milk cold throughout the chain.
- Many small processors, with the two largest processors, Nestle and Haleeb Foods, accounting for 65 percent of the total processed milk and 13 others sharing the rest.
- Relatively low quality standards in processing plants, with Nestle maintaining internationally high standards but standards in the rest of the industry varying from acceptable to very poor.
- High logistics costs throughout the value chain due to small scale.

Policy Reforms

- Government sector large and bureaucratic, with difficulty providing assistance to the sector.
- Private sector perception that the public sector is incapable of providing useful support to the dairy sector.
- High tariffs on packaging materials and plant equipment.
- Sales tax on milk and dairy products resulting in reduced demand.
- Widespread lack of public awareness on health and quality issues relating to milk and dairy products.
- Almost no relevant livestock research despite many Livestock Department research farms, due to lack of funds.
- No membership in International bodies such as WTO, IDF, CODEX etc.

⁴⁶ The International Farm Comparison Network was undertaking some basic farm level benchmarking.

⁴⁷ Halla / Idara-e-Kisan were the exception to this, but Halla is an NGO, not a farmer-owned cooperative.

Workforce Development

- Acute lack of skilled human resources.
- Universities producing too many graduates in some disciplines but not enough in others. For example, many vets but few people trained in animal nutrition, farm management, agricultural engineering, animal husbandry, and soil sciences.
- Private sector perception that universities incapable of meeting dairy sector needs.

Opportunities

- Improve the rural economy (poverty alleviation) through growth in milk volumes and increased prices for milk.
- Empower farmers through formation of farmer's groups and organizations.
- Empower women through training schemes at the village level.
- Take advantage of multinational supermarket chains entering Pakistan.
- Increase the range of quality processed dairy foods for the consumer, utilizing better quality milk and larger retail outlets.
- Develop export markets to nearby countries such as Afghanistan, Iran, and China, in particular through increased milk production and export in Balochistan.
- Develop meat industry as an integral part of the dairy sector by selling older cows or low performing cows for slaughter at a reasonable price to enable the farmer to continually improve his breed of cows; develop a profitable outlet for male calves.
- Increase the skills of the workforce as a means to higher productivity, better milk quality and other improvements throughout the sector.

Threats

- Diminished government support of the work carried out under PISDACII, in the event of a new administration.
- Resistance to change at all levels of the political process.
- Lack of long term funding for Dairy Pakistan. (Dairy Pakistan will need to ensure that it can obtain the level of funding necessary in the future to continue to carry out its Strategic Plan. These funds will probably come from government, private sector, user fees for sector-sponsored activities, and donor organizations.)
- Low cost imports, including dumping. Products from India, Europe and the US are often sold at below international prices and this undermines the local market and the ability of the processors to purchase and pay an acceptable price to farmers.
- Continuing high tariffs on packaging materials and plant equipment, on the order of 25 to 40 percent.
- Inability of farmers to organize.
- Increasing energy costs. The sector requires relatively high levels of energy to collect, cool and transport milk.
- Loss of sector support for Dairy Pakistan.

DAIRY SWOG ACHIEVEMENTS FROM JUNE 2004 TO AUGUST 2006

Based on the SWOT analysis above, a Strategic Plan was developed in June 2004. In the two years following, a number of specific actions have been initiated to address issues facing the sector and to begin developing the industry's potential. The list below summarizes the main achievements through August 2006.

Planning and Benchmarking

- A Strategic Plan is in place and enjoys the sector's support. This plan will need to be reviewed by the sector on a regular basis and updated to meet any significant changes in circumstances.
- There is now greater understanding of the international dairy industry and current international best practices, resulting from study tours to New Zealand, Australia, India and Europe.
- The Pakistan Dairy Sector has established international benchmarks in terms of competitiveness, technologies and best practices. This benchmarking has highlighted the extensive supportive and organizational structures which are features in many countries with internationally competitive dairy sectors.

Industry Structure

- Dairy Pakistan, led by the private sector, was established as the prime dairy sector advocacy organization with funding for five years from GoP.
- The SWOG is now functional and will provide long-term support to the sector and to Dairy Pakistan. Within the SWOG, core groups have been established to address workforce development, quality standards and model farms.
- A database of all key dairy sector players has been established and will be used as a basis to prepare and publish an Industry Directory.
- Dialogue with donor organizations is ongoing. This is critical in the longer term to optimize the expenditure of funds in the sector and to maximize the benefits for the whole sector.
- International linkages have been established:
 - India: some of the SWOG members will be attending the Dairy Expo 2006 in India.
 - New Zealand: there is ongoing dialogue with universities, farm consultants, etc.
 - Australia: Australian farm consultants have been very active in the initial stages of the Model Farm program. Austrade is now organizing a trip for some of the SWOG members to Australia to look at the potential to import improved breeds of dairy cattle.
 - Europe: PTC+ will partner with UVAS to provide training at the farm and processing levels.
 - US: links have been established with several universities.
- The SWOG is working in both NWFP and Balochistan to establish farmer based cooperatives. The foremost Indian expert in cooperatives, Dr. Khanna from AMUL, is participating.

Policy Reforms

- The dairy SWOG, with help from J.E. Austin, has learned how to prepare position papers and negotiate with government to advocate for policy reforms.
- Sector-related policy reforms include zero-rating of sales tax for dairy products such as packaged milk, flavored milk, plain and flavored yoghurt, desi ghee, butter, cream, whey powder and cheese; and reduction in import duties on processing equipment, breeding animals and packaging material.
- Customs duties on packaging raw material have been significantly reduced. Import duties in the range of 15-25 percent that imposed a significant cost on manufacturing of packaging material for processed milk have now been reduced to 5 percent.
- The Dairy SWOG has identified the need to review national and international trade policies affecting the industry and identify threats and opportunities for market development. The private sector has taken a lead and some of the SWOG members have engaged Fakhar Law International to undertake a study.
- Revised Food Standards are being drafted in conjunction with the Pakistan Standards Institute. The process of establishing and enforcing adequate Food Safety standards will be a long process. Required pasteurization will provide impetus to the industry to furnish affordable high quality milk as an alternative to the current poor quality loose milk now being offered to consumers.

Farming and Processing

- The Model Farm program is underway with immediate results in improved productivity. This program focuses on improving productivity and profitability by introducing relatively simple, low cost changes to current practices, such as ensuring that cows have access to clean drinking water at all times. Other advances have been to improve the nutritional value of feed, resulting in significant improvement in yields. In the longer term an important factor will be the genetic improvement of livestock.
- Importation of improved livestock is underway.
- The Model Collection program is beginning to address poor milk quality issues. This program is based on the provision of interest free loans by Dairy Pakistan to encourage the installation of milk collection centers in villages. These centers will enable milk to be chilled quickly and will also provide control over the milk throughout the chain so that adulteration does not occur. The program will provide more milk to processors and more money to farmers. With access to an assured outlet for their milk, farmers can sell all of their milk rather than just the morning milking. This will significantly reduce losses. It is expected that farmers will also expand production through the keeping of more animals.

Workforce Development

- Progress is being made to identify workforce development issues and to establish viable training options at all levels with particular emphasis on forging closer links between academic institutions and the dairy sector.
- PTC+ of Holland is forming a partnership with UVAS to provide practical training for the dairy sector, for both farmers and processors. The SWOG is actively involved in this process.

LESSONS FROM THE PAKISTAN DAIRY INDUSTRY

Success depends on legitimizing the process

SMEDA's active support and involvement with the SWOG was crucial to legitimizing the process. Dialogues were also initiated to secure support for SWOG initiatives at the highest levels of government. In particular, the Federal Minister of Industries provided strong support for the sector and ultimately both the Prime Minister and President reviewed and supported dairy sector initiatives. In addition, the US Ambassador met with the SWOG and this provided further support and strengthened the process.

It takes time to make progress

It takes persistence to ensure that all players buy into the process. Initially SWOG members were wary of one another and skeptical about the chances for real progress. It took time to change the predominant attitude from "what's in it for me" to "what's in it for us."

The J.E. Austin Associates team expended substantial time and effort at the start of the process to bring all of the players to the table and encourage them to participate in the process.

Study tours were a major factor in helping people to understand the need to work together, both because of what participants witnessed elsewhere and also because group dynamics improved when sector representatives traveled together and discussed shared concerns.

Key supporters must be identified

A major reason for the success of the dairy SWOG was the identification early on of a few key people who would support the process and motivate other stakeholders. These people need to represent all parts of the sector.

Representation from as much of the sector as possible should be obtained

Initially the SWOG was not representative of the whole sector. Because there was no organized group to approach, there was little representation of farmers. Later a number of individual farmers became involved. Furthermore, SWOG has expanded to include middlemen who will play a key role in the coming days, as attempts are made to address milk quality issues and introduce minimum pasteurization and food safety standards. The SWOG was also successful in bringing in a group of small farmers under the umbrella of the National Rural Support Programme. Work remains to be done, however, to encourage greater participation from other key players such as Haleeb & Halla. It would also be useful to have a consumer advocate involved in SWOG.

Technical Assistance is a vital part of the process

The use of international consultants is very important to ensure that there is an expert and independent view provided with respect to how the sector can be improved in a sustainable

manner. It is important that all consultants understand current international best practices and are able to apply these locally.

Committed local staff should be hired and retained

It is very important that the local staff have a high level of skills and commitment if the SWOG groups are to be successful. Preferably one key individual should 'manage' one sector and should be the prime person to organize and motivate the stakeholders and provide the SWOG with the tools needed for progress. The dairy sector SWOG lost some momentum and direction at times when staff changed.

Study tours are vital

The study tours to New Zealand, Australia, India and Europe were indispensable as sector players were able to see first hand the dairy industry in a number of countries. These tours provided a range of different scenarios which were useful in helping to determine the appropriate model for Pakistan. For example, the model for Dairy Pakistan was based on Dairy Australia and Dairy Insight (NZ). In addition, technology and practices were identified which could be applicable to Pakistan, such as the Amul Dairy Cooperative system and the Mother India Milk Shops in India.

The tours also provided many linkages with organizations in these countries which will provide future benefits through ongoing contacts. Study tours need to be well organized and there is a need for someone to serve as group leader. In addition, a detailed report needs to be prepared after the tour to encapsulate the key findings from the tour.

Sustainability of the development process over the medium to long term must be addressed

Considerable resources are required to develop the process for initiating sector improvement. It is important to ensure the long-term sustainability of the improvement process since the input and support from USAID/J.E. Austin are limited to a relatively short period. The establishment of Dairy Pakistan is seen as the vehicle for ensuring long-term continuous improvement in the sector.

WHAT STILL NEEDS TO BE DONE

A large number of initiatives were identified as part of the Strategic Planning Exercise and while a number of them are proceeding well, limited resources make it impossible for all initiatives to proceed as soon as desirable.

The SWOG has identified three major initiatives which are very important to the long term development of the Sector and work is continuing on these. They are:

- Developing the workforce
- Creating a formal organization for farmers
- Formalizing participation by middlemen in the sector

Developing the Workforce

Universities face serious constraints due to lack of resources and lack of investment over the last 20 years. The Higher Education Commission has the responsibility for providing funding under a number of programs to address many of the problems in the education sector.

The dairy sector has a reasonably clear idea of what it needs to develop its workforce, but there are no facilities to address these needs.

The SWOG is in the process of developing a funding proposal for a Dairy Development and Training Institute at University of Veterinary and Animal Sciences (UVAS) to provide practical training to meet dairy sector needs at both the farm and processing levels. The Dutch training institution PTC+ will be a partner in this initiative.

University of Agriculture Faisalabad (UAF) has also recently developed and introduced a Masters Degree in Dairy Technology with involvement of the SWOG.

Creating a Formal Organization for Farmers

In many parts of the world farmers have formed cooperatives to secure more control over their milk production and returns.

The cooperative model has been highly successful in Australia, NZ, USA, South America and India. In Pakistan the closest to this model is the Idara e Kisan model under the auspices of the NGO Halla.

It is very difficult for farmers to establish an effective organization, particularly if they are supplying milk through an existing chain of middlemen or processors. These bodies have a vested interest in ensuring that the farmers don't become organized. SWOG has identified an opportunity to consider the establishment of a Farmer's Organization in Balochistan. There are a number of advantages in proceeding with this project and a number of the strategic initiatives can be followed up in due course. These include:

- Milk production from Friesian cows.
- Establishment of model milk shops in Quetta.
- Introduction of minimum pasteurization standards.
- Development of the export market (Afghanistan and Iran).
- Cattle breeding to supply cattle to the Punjab and Sindh.

A SWOG core group has already been established in Quetta to advance this initiative.

In addition to Quetta, SWOG is also partnering with NRSP to replicate the Gujarat Cooperative Milk Marketing Federation (GCMMF) model in Punjab. J.E. Austin Associates has engaged Dr. Khanna from AMUL India to obtain insight into the possibility of replicating the GCMMF model in Pakistan and also to capitalize on knowledge gained from Indian workforce development and distribution/marketing initiatives.

Formalizing Participation by Middlemen in the Sector

97 percent of the milk produced in Pakistan is classified as "loose" milk. Probably around half of this milk is consumed in the villages. The rest of the milk finds its way to the larger urban centers through a network of middlemen. The middlemen were not involved in the SWOG until recently.

Now a number of the larger middlemen have become involved in a SWOG core group and the objective will be to get them to subscribe to the collection, handling and distribution of better quality milk.

ANNEX V: SITUATION ANALYSIS FOR PAKISTAN GEMS AND JEWELRY INDUSTRY⁴⁸

G&J SITUATION ANALYSIS SUMMARY

Despite its abundant reserves of precious and semi-precious gemstones and rich history in jewelry manufacturing, Pakistan has been unable to develop an internationally competitive gems and jewelry industry. If it can capitalize on its vast natural resources, low labor costs, skilled craftsmen, and growing national and international demand, Pakistan has the potential to position itself as a regional hub for precious stone cutting and jewelry manufacturing. Developing this potential will have a significant impact on Pakistan's economy in terms of increased employment and entrepreneurship, income generation, export revenues, and poverty alleviation. Growth of this sector, which consists mainly of small and medium entities, will also have positive externalities for social indicators such as health and education.

It is in this context that the United States Agency for International Development launched the Pakistan Initiative for Strategic Development and Competitiveness Project, implemented by J.E. Austin Associates, a US-based management consulting company working in partnership with Pakistan's Small and Medium Enterprise Development Authority. As part of the initiative, a group of committed industry stakeholders from gems trading and mining, jewelry manufacturing, retail and wholesale, training institutions, technical service providers, raw material suppliers and other allied industries agreed to form a Strategy Working Group (SWOG) to formulate a strategy to reposition the sector. Within 16 months, the SWOG had developed a strategy shared and agreed to by the private sector and the Government of Pakistan. The SWOG itself has become a recognized platform, led by the private sector, on which all the key players in the value chain, including the public sector, have come together.

In general, Pakistan's gems and jewelry industry suffers from limited investment in research, product development and training; low levels of technology, outmoded mining techniques; underdeveloped lapidary facilities and skills; high raw material costs; poor international marketing and branding; underdeveloped designing capabilities; limited linkages with domestic and international support infrastructure; limited identification and certification; and lack of hallmarking.

Pakistan is in the process of shaping the future of its gems and jewelry industry. It has realized the importance of this sector's contribution to the economic growth of the country and the well-being of people already employed by this sector. Public/private entities are starting to work together to upgrade training and technological infrastructure, and invest in R&D and the marketing initiatives to develop new markets. In order to do so successfully, foreign expertise has been brought in through the PISDAC project to identify key initiatives to improve the sector's competitiveness. Increasing competitiveness includes the implementation of initiatives that build institutions and practices to guarantee quality and accountability in addition to upgrading technology, training and market knowledge and to support changes in product and market development.

⁴⁸ Prepared by Sibylle Schempf, International Gem & Jewelry Branding Consultant; and Mian Jamshad Waheed, Pakistan Gems & Jewelry SWOG Coordinator.

INTRODUCTION

The purpose of this report is to present a situation analysis for the Pakistan Gems & Jewelry industry and its results under the second phase of the Pakistan Initiative for Strategic Development and Competitiveness (PISDAC II), a USAID project implemented by J.E. Austin Associates and Nathan Associates in partnership with the Small & Medium Enterprise Development Authority. The project commenced May 10, 2004, and a modification effective August 12 of the same year extended it through August 31, 2006. The overall objective of PISDAC, currently in its third phase, is to support self-selected Pakistani industries in developing strategies for upgraded production, as well as instituting a self-sustaining process by which such industries organize themselves to enhance their quality and increase productivity.

One of the self selected industries, Gems and Jewelry, is working together across regions and activities to establish itself as a high-value-added, internationally competitive, world-class hub for precious stone cutting and jewelry manufacturing. The industry is pursuing this vision by up-grading mining and gems and jewelry production processes through improved technology and skills, developing the workforce to improve productivity across the supply chain, promoting R&D and diversifying the product base to realign supply with local and international market needs, establishing and implementing quality standards and ensuring an enabling policy environment.

ANALYSIS OF PROGRESS — G&J

I. Industry Structure

The industry is highly fragmented, with very few players having complete in-house production facilities. Most of the players outsource manufacturing/processing to small vendors. The use of high-technology machinery is absent throughout the value chain.

Status at Start of PISDAC II - September 2004

- Fragmented, with a horizontal structure, a high degree of specialization and little sharing of information regarding the market's progress and possible improvements in production and marketing along the value chain.

Current Situation - August 2006

- Stakeholders along the value chain are working to establish horizontal and vertical cooperative structures in anticipation of introducing high technology equipment.
- There has been a greater degree of cooperation since the establishment of the collective structure of the SWOG. This in turn has promoted the distribution and sharing of both technical and market information among the stakeholders.
- Actors along the value chain are starting to develop joint business ventures across geographical regions and value-added functions. The increased willingness to share ideas and cooperate, harnessing respective strengths to support product innovations and effective distribution, is a move away from the formerly prevalent behaviors of protectionism.

II. G&J Manufacturing/Processing

Jewelry

The labor pool has a high skill level, producing ethnic designs with traditional techniques. This segment of the industry has a highly organized subcontracting matrix structure. The tradition in manufacturing is based on the use of soft 21 to 22kt gold. This determines the tooling and techniques used in casting and hand-made construction to create volume and shapes in addition to the setting of stones. This basic tooling results in finishing consistent with 22kt traditions but not with the technology-driven 14 to 18kt market in the US and Europe or other western design-oriented markets. With a rich tradition of craftsmanship in jewelry manufacturing, Pakistan's skilled/semi-skilled labor force is available at relatively lower rates, which offers a comparative advantage in the global market.

Gems

Gem cutting and processing in Pakistan suffers from obsolete technology, limited skills, and imprecise craftsmanship. Little value is gained by processing stones since cutting in the workshops exists on a limited scale. The prevailing technique is based on cutting to maximize weight, not value. The industry lacks expertise in precision and calibrated cutting, and is not up to date with the latest treatments. In addition, the lack of exposure to competitive markets offering high value processed goods promotes inadequate pricing strategies which result in sales at below-market prices or overpricing.

Status at Start of PISDAC II - September 2004

Jewelry

- Little to no experience with production of merchandise for markets other than South East Asian 22kt gold.
- Limited access to manufacturing technology for silver and low-karat gold.
- Traditional manufacturing processes; no access to computer-assisted manufacturing.
- Little implementation of finishing standards to serve domestic/foreign markets.
- Widespread use of cadmium solder not accepted in some important export markets.

Gems

- Preference for synthetic stones instead of real stones.
- Lack of value-added in stone trade due to limited know-how about international quality standard stone cutting techniques, such as calibration.
- Limited availability of quality, well priced goods from international stone supply centers.
- Growing interest in diamond-set jewelry restricted by the limited availability of trained diamond setters.

Current Situation - August 2006

Jewelry

- Manufacturers looking to develop export markets are actively researching indium solder as an alternative to the harmful cadmium.
- Training by a world-renowned jewelry manufacturing expert is being implemented to create a pool of Master Trainers.
- Academia and the industry have hired CAD/CAM instructors who were sourced in Pakistan.

- The Pakistan Council for Scientific & Industrial Research (PCSIR) has invested in state of the art casting machinery.

Gems

- A gem lapidary consortium is working on a business plan and feasibility report to establish a state of the art gem cutting/processing facility in Pakistan.
- Research is being conducted to introduce artificial intelligence techniques to gem processing.
- A stakeholder in Quetta has established a high-tech lapidary facility.

III. Product

Pakistan has a vibrant local retail market for gold jewelry, with Lahore and Karachi as the main hubs. As in most Southeast Asian markets, 22kt jewelry is the preferred form of investment in family and women's assets. Lavish designs for wedding occasions drive the market irrespective of social class and income levels. Wedding jewelry in Pakistan has a unique position in the Asian 22kt design vocabulary as it is covered with colored stones in a distinctive traditional fashion that irreverently mixes natural and synthetic. A few high end retailers are pursuing innovation in product design through product differentiation. Since the start of the branding campaign, wholesale exporters have begun to target particular export market categories as part of the drive to differentiate the country's services and products.

Status at Start of PISDAC II - September 2004

- Retail focused on local consumer markets; no regional/national chains.
- Select group of retailers/manufacturers exported to Pakistani communities in the Western hemisphere, Arabian and Indian subcontinents.
- On the wholesale level, volume gold bangle and wedding set manufacturers clustered in Karachi, selling on a national level and exporting mostly through Dubai.
- Local offerings focused on the sales of rough gems.

Current Situation - August 2006

- Manufacturers are working with designers in target markets to develop product lines for export to western consumers. They are also developing lines for new consumer segments within Pakistan such as youth, who prefer simpler every-day jewelry in white and more affordable metals tin keeping with changing fashions and trends.
- Manufacturers are developing product collections and moving away from an item-based approach to merchandising.
- International exposure at trade shows (such as the JCK and GLDA shows in the US, the Bangkok Show in Thailand, and the IJS show in India) has taught dealers to focus on value added by processing their gem offerings.
- Gem dealers have started to implement competitive pricing and product differentiation.

IV. Design

Design outside of local traditions is mostly derivative, taken from foreign mass-jewelry catalogues with in-house designers having little knowledge of international consumer preferences. International volume marketers sourcing products in low-wage countries need standardized design capabilities. To meet this need, artists must be trained in Computer Aided Design (CAD).

Status at Start of PISDAC II - September 2004

- Focus on traditional design vocabulary – Pakistan is famous on the subcontinent for intensely studded, colorful designs.
- Traditional design techniques, no access to CAD technology.
- Some attempts at incorporating western trends and influences.
- Little local design talent to develop ideas with international appeal, making it impossible to create unique designs that can assist in brand differentiation and generating margins.

Current Situation - August 2006

- Select companies have developed relationships with foreign-trained designers and are developing products according to target market preferences.
- Research is being done to introduce CAD technology in Pakistan.

V. Quality Assurance/Hallmarking/Gem Certification

Pakistan currently lacks an institutional mechanism for certification and hallmarking of the karat of gold jewelry. Consequently, there is no guarantee that the stated karat of jewelry sold in the local market is accurate. Moreover the country lacks adequate gem identification facilities and an understanding of gemstones and their properties, often leading to the underpricing of precious stones as well as a lack of buyer confidence.

Status at Start of PISDAC II - September 2004

- No hallmarking system.
- No accredited gem labs, but some independent gemologists providing services in retail markets.

Current Situation - August 2006

- PCSIR has invested in technology to demonstrate hallmarking in Pakistan.
- Private enterprises are investing in the technology to offer hallmarking close to manufacturing centers.
- Quality assurance initiatives are widely accepted among stakeholders as a crucial element in developing consumer confidence and reducing barriers to entry in local and international markets.
- The industry is recognizing the advantages of gem certification (such certification can reduce trading inefficiencies due to information disparity and can develop the gem industry as consumer perception of the value of investing in gems rises through internationally accredited evaluations).

VI. R&D and Market Research

Currently there are few links among R&D institutes, technical support institutes and the industry. Hence, while these institutes may continue to implement projects, these are mostly centralized and the resulting findings and expertise are not widely disseminated.

Status at Start of PISDAC II - September 2004

- No formalized research on:
 - emerging trends
 - consumer demand
 - latest technology
 - target markets.
- No academic institutions offering formal programs for professional development in the G&J industry.

Current Situation - August 2006

- Actors from industry, government, design, academic and training organizations and scientific/industrial R&D institutions are actively working together to develop an independent local pool of market-relevant design talent and to explore new technology and materials.
- Beaconhouse National University (BNU) and Pakistan School Fashion Design (PSFD) are developing full degree programs in Gems & Jewelry design and manufacturing.

VII. Consumer Communication

The SWOG has identified the need to build consumer confidence, awareness and acceptance of value-added offerings such as proprietary design, customer service, quality workmanship, and adherence to industry standards such as marking, assaying and gem certification. At this stage local manufacturers and marketers still lack the capacity to cater to consumers that prefer products meeting international standards.

Status at Start of PISDAC II - September 2004

- Well-respected retailers offer brochures.
- Bridal magazines place heavy emphasis on wedding jewelry.
- Retailers actively advertise for wedding occasions in national fashion magazines.

Current Situation - August 2006

- Quality assurance initiatives such as hallmarking are scheduled to start this year, and will be introduced and disseminated using an extensive consumer campaign.
- As companies are starting to develop differentiated product collections, they are planning to produce high-quality brochures to be distributed to retailers for their customers and at trade shows.

VIII. Trade Communication

Few industry players have established linkages with international wholesalers. To increase the effectiveness of initiatives, raise awareness and position Pakistan as a high-value source for gems and jewelry, the sector needs to come together and present itself with a focused presence that sends key messages to the global market at trade shows. The limited international press coverage on Pakistan's offerings restricts the industry's ability to expand into new markets abroad. In addition, national coverage on the sector's efforts to upgrade must be expanded in order to improve consumers' willingness to pay premiums for brand-differentiated jewelry. Furthermore, complete reliance on local consumers restricts the industry's ability to grow and diversify.

Status at Start of PISDAC II - September 2004

- No industry-specific magazine or newsletter to voice industry concerns, spread innovations, promote supplier services/products to stakeholders or share market developments.

Current Situation - August 2006

- A group of SWOG members started publishing a monthly industry newsletter as of May/June, 2006.
- There is great interest in developing a press platform as well as a seminar/lecture circuit for national trade shows.
- Industry members have started joining global industry associations and generated articles covering Pakistan's activities.
- International awareness of Pakistan as a source for gems and jewelry has increased and credibility is being established through participation in international trade shows. Delegations meeting abroad with the International Colored Stone Association (ICA), World Gold Council (WGC) and international trade show representatives have generated extensive coverage in the international press and local media.

IX. National and International Linkages

Linkages between local/international training providers, research facilities and the industry are being identified in order to foster a climate of innovation and help integrate graduates into the workforce. Internships and post-degree programs as well as pre-enrollment practical private industry experience would reduce the gap between academia and market requirements.

Status at Start of PISDAC II - September 2004

- Weak linkages, highly localized to industry tiers, cities, and markets.

Current Situation - August 2006

- Creation of joint ventures and distribution arrangements among industry players.
- Actors from industry, government, design, academic and training organizations and scientific/industrial R&D institutions are actively working together.
- The Asian Institute of Gemology Sciences (AIGS) has signed a Memorandum of Understanding with Pakistan to introduce international standard gemology training, a

positive development not only for the training offered but also for the credibility that the AIGS name provides.

X. Cooperation

The newly created brand “Gems & Jewelry Pakistan,” with one integrated, distinctive corporate and visual identity, is an important element of the SWOG’s branding strategy. Its development required collaborative work across the industry and public sector. This landmark effort should lead to continued increased cooperation among participants. Distribution partnerships capitalizing on individual companies’ access to retail markets across different regions and international wholesale clients will enable manufacturers/processors to find additional outlets for new product categories.

Status at Start of PISDAC II - September 2004

- Past business practices and industry history promoted cooperation among clan and family members only; this method of operating limited utilization of resources across the value chain as well as access to other regional markets within the country.

Current Situation - August 2006

- Stakeholders are actively pooling resources and sharing know-how across the value chain. This is helping to maximize the utilization of resources beyond local boundaries.

XI. National Representation

Upgrading of the industry requires cooperation across regional divisions. Industry development should be supported by a nationally recognized official body with the necessary legitimacy and authority to promote implementation of new practices. Changing trade and consumer perceptions will require that this body promote adherence to international manufacturing, processing, retailing and export standards. Members will acquire the right to use the logo and/or trademark of this official entity to communicate their adherence to these standards.

Status at Start of PISDAC II - September 2004

- National representation weak and limited to the interests of local constituencies.

Current Situation - August 2006

- Pakistan Gems & Jewelry Development Company has been established to provide national representation.
- The Gems & Gemological Institute of Pakistan (GGIP) has expanded their board to include directors from all regions of Pakistan.
- Different local trade factions have agreed to work together to overcome the fragmentation due to regional thinking.

XII. International Affiliation/Memberships

Active participation in international associations provides new linkages to promote supplier relationships and increase competitiveness by sharing and acquiring information in a cooperative environment.

Status at Start of PISDAC II - September 2004

- Inward focus and weak affiliation with international associations.

Current Situation - August 2006

- Industry members have started joining global industry associations and generated articles covering Pakistan's activities.
- WGC Dubai and India have pledged support to Pakistani retailers with marketing tools.

XIII. Markup and Profit Margins

Dealers must be adept at performing competitive pricing analyses and designing pricing strategies that take into account the competition, especially within the 22kt gold jewellery market and the faceted/calibrated gem market. Low-volume, inexperienced gem houses have little knowledge of international pricing strategies. In their short-term efforts to turn a profit, they overprice their merchandise, losing their competitiveness and forfeiting the opportunity to establish ongoing customer relationships. Gem exports are limited to the value created by sales of rough material or stones, and the industry is not realizing potential profit margins due to uncontrolled exporting at below-market prices. In-country processing centers can address this by keeping the value-added functions within Pakistan.

As jewelry manufacturers are moving from item-based and cost-driven marketing to brand collection marketing, they will need to adjust their pricing strategies from a commodity-based to a value added mark-up structure. Increased margins are necessary to offset increased investments in R&D and customer communications. These margins can only be achieved if manufacturers stop pricing by weight and labor and begin pricing by item, adding a percentage to reflect additional costs.

Status at Start of PISDAC II - September 2004

- Razor-thin margins encourage dealers to focus on metal weight, material and labor cost as a basis for pricing and to prefer quick turn-around.

Current Situation - August 2006

- Manufacturers are developing new product collections which will not be sold by weight and which will have increased margins to support investments in advertising and R&D.

XIV. Branding

International trade show attendance is a key initiative of the Branding and Marketing Strategy now in its second year of implementation. The Pakistan Pavilion at international trade shows is part of the umbrella branding strategy to promote international business and build global awareness. September 2006 will see the continued participation of a representative delegation of Pakistan's gem & jewelry

trade at the Thailand Gems and Jewellery show. In 2005, hard work and the SWOG agreement to go under the banner of “Gems and Jewellery Pakistan” yielded more than 10 percent of the total exports registered by the industry in 2004. Efforts paid off in business contacts and generated sales in excess of USD 4 million with more expected as a result of this year’s participation.

This continued landmark collaborative effort, the sum of many individuals’ efforts from the private and public sector, shows the industry’s commitment to the continuity and consistency necessary if a branding effort is to instill customer confidence. Most customers do not buy the first time but want to observe an ongoing presence through participation at key trade shows over a minimum of three years. In addition, institutions and associations are more willing to lend support to companies with a well thought-out professional appearance. The engagement of marketing and advertising professionals guarantees that the development of marketing materials, promotional events and event architecture will meet international standards for visual and written communications.

Status at Start of PISDAC II - September 2004

- No local brands.
- No structured exploration of differentiators and value-added factors to increase consumer loyalty and strengthen market positioning.
- Little recognition of Pakistani jewelry as a brand in the international market.
- Limited investment in marketing and branding.
- Most businesses operating strictly on their individual reputation and credibility.

Current Situation - August 2006

- A brand for the Pakistani industry, Gems and Jewelry Pakistan, has been developed and launched at the Bangkok Show.
- Brand communication materials such as a Gems and Jewelry Pakistan brochure, DVD and website have been widely distributed at international venues.
- Members of the G&J Pakistan initiative confirmed that being grouped under a professionally executed branding campaign has promoted their confidence, as their credibility and competitiveness increase thanks to their affiliation with positively differentiated branding attributes.
- Companies, especially those selling high end goods, affirm that branding Pakistan is essential to their efforts to establish an international clientele.
- Several manufacturers are developing sub-brands for collections in materials targeting new markets with differentiated, proprietary designs.

XV. Trade Show Infrastructure

Developing the national show circuit is crucial as Pakistan professionalizes the national market. Adding shows closer to the easily accessible marketplaces of Islamabad and/or Karachi will eventually enable show organizers to progress to an international level, attracting global buyers and exhibitors beginning with the closest regions of the Middle East, Thailand, India and Sri Lanka. Expanding the number of exhibitors and bringing in stalls for related organizations such as educational institutions (like PSFD and BNU) and machinery manufacturers will further help to develop a fully integrated service industry.

Status at Start of PISDAC II - September 2004

- One national gem show per year with limited participation, in Peshawar.
- Inconsistent participation in international shows by individual companies, with limited success.

Current Situation - August 2006

- A public/private partnership is being implemented to develop national trade shows, expanding the industry's reach to include international buyers and ancillary industries. The launch of a national gems and jewelry show is planned in Islamabad, with the intent of spreading it to other regions of the country on a rotating basis.

PAKISTAN GEMS AND JEWELRY INDUSTRY: GOING FORWARD

Through the implementation of the initiatives proposed by J.E. Austin Associates, the SWOG has managed to overcome many of the obstacles they faced earlier. However, there are still several steps that need to be taken by the sector to ensure its continued development. On an international level, the industry's credibility will be strengthened by intensifying alliances with globally recognized institutions such as WGC, CIBJO, ICA and others.

General Marketing

On the marketing front, the SWOG must focus on:

- 1) Continued implementation of branding initiatives for and during trade shows.
- 2) Sales and presentation training.
- 3) Market research to identify opportunities and shifts in market developments.
- 4) Product design and merchandising that take into account differing target market requirements.
- 5) Quality assurance promotions.

Marketing at Trade Shows

To maximize branding and sales development, the sector needs to research how it can expand its participation at international shows. Intensifying the development of National Trade Shows and other promotional events will enhance local professionalism and promote cooperation within the sector. Among the opportunities are:

- The Peshawar Gem Show.
- The Islamabad show planned for Nov 06 in partnership with the government.
- VIP events such as the one planned in Islamabad for the VIP community.
- The launch of PCSIR (hallmarking initiative) and AIGS (gemology training) programs. These have been noted as possible co-marketing promotional opportunities for launching a series of events, lectures and advertisements designed to raise awareness and facilitate endorsement of hallmarking and certification on a national level.

Quality Assurances

Quality assurances perform an important function either as part of a branding strategy or especially in the absence of brands. A quality assurance given by manufacturers promotes consumer

confidence and allows for non-branded goods to be marketed irrespective of the specific workshop they originated from. A number of related activities would level the playing field for weaker members in the value chain, including: industry-wide endorsements of quality improvements such as the hallmarking initiative; establishing G&J Pakistan as an association regulating quality standards; disseminating technical information at the national level; and implementing further initiatives with institutions including PCSIR, SMEDA, etc.

Creation of an Organizing Body and Industry Representation

At the structural level, the industry needs to establish itself under a unified banner. The association responsible for this — G&J Pakistan — will need to ensure that development is done both horizontally and vertically. Thus, the association will be responsible not only for imparting technical expertise to every level of the manufacturing chain but also initiating such activities. In this regard, the first step would be the establishment of the 'G&J Pakistan' logo as a unifying symbol for the jewelry manufacturers. This can then be used as a mark of quality assurance for both the manufacturers and the consumers with members having the right to use the logo to communicate their adherence to standards set by the association. Hence, the next step will be to register the logo as a trademark.

In addition to this, the association will need to determine what it stands for in terms of regulating practices and ensuring the highest standards. It will need to set the minimum product and service standards that any gem dealer or jeweller entitled to use the logo must comply with.

The next challenge will be to promote awareness among consumers and generate endorsement amongst retailers and manufacturers for these types of initiatives. Brand communication activities need to be expanded to include consumers and the trade. Informational and promotional initiatives should be initiated to educate the national retail and manufacturing sectors about the need for adoption of the above-mentioned quality improvements.

Training and Technology

The industry needs to diversify its capabilities to develop new products for international and local markets. Investments in training and technology to expand the current focus on 21 and 22kt gold are needed immediately. Organizing cooperative structures within hubs, regions and on a national level would promote the efficient usage of limited resources and benefit the greatest number of companies within the shortest amount of time. To ensure competitiveness, these areas have been identified as top priorities for technical assistance and investments in proper tooling:

- 1) Casting, alloying, refining and hallmarking for 14 and 18kt white and yellow gold.
- 2) Soldering in conformance with international quality and health regulations.
- 3) CAD/CAM technology and rapid prototyping.
- 4) Wax carving for western style design prototyping.
- 5) Operations management and specifically inventory management training, to include the latest software.
- 6) Gem processing techniques such as designing, faceting and cutting.

Finally, additional training and preparation of Master Trainers in Pakistan's manufacturing hubs is essential. In particular, the sector must expand training, lab and marketing initiatives in coordination with the following AIGS, GIA, and LAO.

ANNEX VI: SITUATION ANALYSIS FOR PAKISTAN MARBLE AND GRANITE INDUSTRY⁴⁹

EXECUTIVE SUMMARY

The *Pakistan Initiative for Strategic Development and Competitiveness* is a USAID-funded project being undertaken in partnership with the Ministry of Industries and its agencies to facilitate the industry to develop its competitiveness strategy. Working with SMEDA and the Export Promotion Bureau, J.E Austin Associates, Inc. met Industry leaders to start this process in May 2004. Since then, industry leaders, relevant government officials, academia, and NGOs have organized themselves into a “Strategy Working Group” or “SWOG.” The SWOG consist of self-selected representatives of all elements of the sector value chain. This cross-section includes quarry/mine owners; stone processors; private firms; labs; related and supportive industries (i.e. equipment makers, brokers, and service providers); universities; engineering institutions; representatives of district, provincial, and federal government; and most importantly, the federal, provincial minerals and mines directorates which are the regulatory authorities for the quarrying/mining sector and the Export Promotion Bureau.

Marble and Granite SWOG members meet on a regular basis and have committed their time to developing a sector strategy to upgrade production and make their industry competitive. The strategy identifies needed investments in human resources, infrastructure, technology, and management required to produce higher-quality products.

The USAID-funded PISDAC project has provided the marble and granite SWOG with foreign and domestic experts and supported a benchmarking/study tour to Italy, to assess gaps and identify linkages and pilot projects to address these gaps and sector weaknesses.

Over the past five months the SWOG has put together its sector strategy, which will soon be presented to the Government of Pakistan.

With help from the Institute of Management Science, the University of Engineering and Technology and the Peshawar University Center of Excellence, linkages have been developed that can support sector research and development, workforce development, and innovation. The SWOG chairman conducted a tour of Pakistan’s provinces where quarrying and processing takes place to meet with all sector associations and groups to engage a much broader private sector audience in a public private sector dialogue in support of the SWOG strategy.

The SWOG membership continues to flow as their work attracts public and private sector stakeholders. The SWOG now includes representatives from the Ministry of Industries, Production & Special Initiatives, the Ministry of Commerce/Export Promotion Bureau, the Ministry of Science and Technology, the Pakistan Council for Scientific and Industrial Research (PCSIR), the Ministry of Petroleum and Natural Resources and various provincial technical departments. Workforce development is viewed by the SWOG as critical to develop human resources and skills sets required for innovation, value-added, improving quality and productivity.

⁴⁹ Prepared by Urbain Heirbaut, International Stone Consultant; and Azeem Niazi, Pakistan Marble & Granite SWOG Coordinator.

The root weakness in the industry lies right at the start of the value chain, at the quarries/mines. The SWOG strategy focuses on minimizing the amount of stone wasted due to blasting and maximizing extraction of square blocks from quarries/mines, as is done by more competitive industries in the global value chain.

INTRODUCTION

The marble and granite sector has significant potential for growth. Pakistan contains major deposits of world-class marble and granite in a wide range of colors, shades and patterns. All provinces in Pakistan have ornamental stone deposits. In NWFP the Malakand, Mardan, Hazara, Peshawar and Kohat divisions are high potential areas for marble and granite and quarrying/mining is already taking place. Mohmand, Khyber, Bajaur, Orakzai, Kurram agencies in FATA are also major zones where considerable quantities of marble are extracted. Balochistan also has rich confirmed deposits of both marble and granite in the Khuzdar, Loralai, Lasbela, and Chaghai districts. Punjab ornamental stone quarries/mines operate in Khushab and Mianwali.

The sector has the potential to be an engine for rural development and poverty alleviation. In FATA alone, the marble quarrying/mining industry has become the key source of livelihood and development of the region. The same can be the case in rural areas of Balochistan and NWFP.

Due to low investment in technology and human resources, the sector suffers from an accumulated 85 percent (world benchmark: under 30 percent) stone wastage across the value chain, of which a staggering 73 percent is at the dimensional stone quarries/mines due to indiscriminate blasting and poor quarrying practices. Another 45 percent of the 27 percent transported to processing plants is wasted due to poor quality raw material, lack of technology, skill and quality control. Indiscriminate blasting at the quarrying/mining stage is destroying the nation's non-renewable resources and damaging the environment beyond repair.

It is in response to the opportunities for this sector that the Industry decided to come together to develop a strategy that will enable them to increase production, add value and obtain better prices throughout the value chain and increase exports with better quality standards.

ANALYSIS OF PROGRESS

I. Industry Structure

Status at Start of PISDAC II - September 2004

The industry is mostly fragmented, with very little awareness of its own potential. Processing and quarrying operations are conducted entirely by SMEs and the industry as a whole is investment-shy. There is very little information sharing or technical expertise within the industry. The dissemination of information is also hampered by logistics constraints due to poorly connected distant clusters mostly operating in rural areas.

There is an absence of trust among leading industry players due to the fragile regulatory framework. Major policy concerns plague the industry, but are not collectively addressed by leading industry players.

Current Situation - August 2006

Quarry owners, processors, exporters, machinery manufacturers have come together with a common strategy. Technical studies initiated by the SWOG have highlighted industry potential and are increasingly influencing the mindset of the industry. Indiscriminate blasting practices have been widely condemned by the industry as a result of the disseminated findings of SWOG study tour to Italy. Leading players in the industry have better understanding of the value chain and are realizing the added value of technical expertise within the industry.

Exposure to the international market through the SWOG and greater understanding of quality control have encouraged investment over the last two years. There is greater awareness of primitive practices and regular interaction among stakeholders across the country.

II. Quarrying/Mining

Status at Start of PISDAC II - September 2004

Quarrying techniques in Pakistani quarries are primitive. Uncontrolled blasting is a common practice. In the majority of the mines, basic machinery and equipment like compressors, drill sets and lifters are not available. This not only leads to colossal wastage, as illustrated above, but also to low production at mines. Uncontrolled blasting destroys value throughout the value chain. The 27 percent of stone that is transferred to processors is all in the form of irregular blocks. These blocks then need to be cut into square blocks or into useable pieces for processing, adding additional cost and wastage to the chain. There is also a lack of knowledge regarding the importance of good prospecting and practices such as topographical mapping, geological surveys, environmental management and physical testing of the stone.

Proper quarry management and investment is constrained across much of the country due to lack of formal property rights and contract enforcement. Land is owned and regulated by the provincial governments. All quarries are then leased by the provincial government to investors and quarry managers. However, leases can be canceled without notice and passed to a new investor. As a result, there are no guarantees or predictable conditions under which investors can be assured that they will be able to generate expected returns on an investment. The risk of having the institutional rug pulled out from underneath them means that investors and quarry managers currently have no incentive to invest in the long-term productivity of their businesses and are forced to adopt a short-run mindset. Most quarries operate under a “blast and run” strategy, maximizing the short-term value of the quarry under the risk that their lease could be canceled at any point, but undermining the long run value of the quarry for both the business and the economy.

Current Situation - August 2006

As a result of the SWOG process and in particular the study tour to Italy, there is increased awareness of the huge amount of wastage at the quarrying stage. All members of the SWOG have been effectively disseminating information on alternate practices which can reduce wastage, and consensus is building on “no more blasting.”

Investment is being generated from within the SWOG and the broader industry as a result of the strategy being disseminated. Three SWOG members have invested heavily in quarries and are implementing best practices, as proposed in the strategy. The industry has also realized the value of

geological surveys and mappings, and is utilizing local resources towards setting up quarries through proper evaluation.

The Pakistan tour conducted by short-term consultants provided by USAID proved to be very effective in providing proper guidelines to quarry owners and processors. The visit itself encouraged the establishment of at least two mechanized quarries from June 2006 onwards.

More and more serious investors are entering the industry. At least one leading industrial group has invested in the quarrying and processing sector. The potential of the marble and granite industry has become more evident and an investment-friendly environment has been created.

The SWOG strategy presented to the President of Pakistan has achieved a full buy in from the Government of Pakistan and funds have been approved to set up 10 model quarries across Pakistan and 20 quarry upgrades in Balochistan.

New investments in the quarrying sector are being made through proper planning and technical studies, as disseminated by the SWOG-developed strategy. Quarry owners are paying a premium for skilled individuals.

III. Prospecting and Planning

Status at Start of PISDAC II - September 2004

There is no local expertise in prospecting and planning, which form a critical part of quarry development. Quarry owners in most cases are not aware of the value of prospecting and planning, and are reluctant to invest in it. Pakistani quarries are developed with minimal planning and no technical studies, resulting in premature quarry abandonment, high wastage levels and poor site selection.

Local R&D institutions and universities have limited capacity in terms of providing technical expertise to the sector. Primitive quarrying practices and colossal wastage levels are largely due to the lack of planning and requisite technical studies. The workforce is unskilled and the need for qualified and experienced quarry masters and technicians is unmet.

Current Situation - August 2006

The Center of Excellence in Geology at Peshawar University, University of Engineering and Technology Peshawar and Geological Survey of Pakistan have developed their capacities and now offer almost the full range of chemical and material tests for marble and granite according to internationally accepted ASTM standards.

Guidelines for developing quarry cultivation plans have also been developed by the SWOG with the help of Italian short-term TA, and at least two local structural geologists are now providing consultancy services to the industry on technical analysis of the stone deposits.

Pakistan Stone Development Company has acquired funds to carry out full prospecting and cultivation planning studies for at least 20 quarry sites and is carrying out studies after an initial short-listing process for quarry sites across Pakistan.

Geological Survey of Pakistan has also agreed to provide topographical mapping and core drilling services to the industry at a subsidized rate.

IV. Processing

The processing industry for dimensional stones in Pakistan started to develop in the late sixties with the housing construction boom. At the time, much of the demand was for low cost, low quality, locally processed stone produced by local processing equipment. The mid-seventies brought imported plants from Italy. Initially, the plants were second generation machines that were barely capable of cutting slabs and tiles at high speed and were operated by inexperienced technicians with limited quality consideration.

Status at Start of PISDAC II - September 2004

There are still very few processing units with a complete range of machinery and equipment capable of processing stone in accordance with international standards. Utilization of these units is barely half of their installed capacity due to inappropriate raw material and lack of technical skill. There are only about 25-30 units which all have appropriate machinery to do one of the sequential activities: cutting slabs, cross cutting, polishing.

The processing sector is hampered by limited knowledge of value added products and poor processing capacity, relatively low levels of technology, lack of basic knowledge about stone testing methods, properties and processing activities, poor infrastructure for processing/fabrication and handling of the material (no concern regarding work conditions or safety and environment). There is little understanding regarding finishing standards for fabrication of good stone work and a lack of value-added to stone products and no attention towards developing new products. Standard products with questionable quality standards that are only good for low-end markets are produced while the potential for handicrafts and mosaics is not fully exploited.

Current Situation - August 2006

Due to the improved quality of raw material, the industry is investing in locally made gang saws and other machinery. Local machinery manufacturers are also reverse engineering imported machinery, making it more accessible to the processing sector.

Other value added products such as mosaics, fireplaces etc. are also being developed and there is greater focus on adding value during the processing stage.

V. Product

Internationally, market leaders in the dimensional stone industry focus on quality and new product development. Benchmarked countries such as Italy specialize in product diversity and cut-to-size high end products. Product diversification is largely dependent on the quality of raw material and limitations at the quarrying level are reflected in the product possibilities during processing.

Status at Start of PISDAC II - September 2004

Due to poor quality and irregularly shaped raw material, the processing capacity of the industry is limited and the quality is compromised. Primary products include poor quality standard products,

tiles and small slabs with minimal value added. No attention is paid to product development and innovation and most products are manufactured without understanding the potential markets. Quantities are also limited due to a weak supply chain and sizeable orders cannot be fulfilled by processors.

Current Situation - August 2006

At the quarrying stage, rough potato-shaped boulders are gradually being replaced by relatively square raw material due to better technology and quality control at the quarrying stage. With better material, the processors have begun to diversify their product line, focusing on manufacturing fireplaces, table tops etc., and they are utilizing wastage in products such as mosaics and handicrafts.

VI. Quality Standards

In order to gain access to high end international markets, quality control needs to be well regulated. It is essential for the Industry to focus on quality, which in itself is value added.

Status at Start of PISDAC II - September 2004

There is a total disregard for quality control through out the value chain. The understanding of material is also limited and calibrated machinery and systematic inspections result in poor quality end products. Proper attention is not paid to material selection and sorting while processing units lack the planning and infrastructure to ensure quality. Raw material is of extremely poor quality, in rough shapes and often damaged. Low quality product results in very little export and mostly feeds into the low end local market.

Current Situation - August 2006

The SWOG has worked extensively with USAID-funded short-term technical assistance to identify requisite quality standards for the export market. The quarrying sector is already making an effort to control the quality of raw material during extraction with respect to shape of blocks and cutting direction. The processing sector has shown greater understanding of the benefits of using calibrated equipment and properly selecting materials during processing. As a whole the industry identified quality control as a priority to gain access to high end exports.

VII. R&D and Market Research

Status at Start of PISDAC II - September 2004

Due to the absence of formal research in the technical and marketing aspects of the sector, the industry has a poor understanding of the international market and remains detached from the market demand. No research has been conducted to better understand international markets. The industry lacks innovation, is indifferent to new product development and continues to struggle within low end market segments.

Knowledge of technology and technical services is limited to a few individuals; as a result there is little or no innovation and upgrading within the industry.

Linkages with R&D institution are not present and potential resources for development are not identified. Local resources for material testing, market information and other technical studies have not been exploited.

Current Situation - August 2006

Internationally accepted quality standards and processing practices have provided guidelines to the industry, helping them to understand the export market. Better quality raw material is fetching a premium in the local market and is encouraging quarry owners to manage quality at the quarry site and reduce waste. Processors are driving the supply of better quality raw material through price incentives, while ensuring improved quality at their end.

VIII. Institutional Linkages

To sustain industry growth, local resources and technical capacity needs to be continuously upgraded. Strong linkages with R&D institutes and universities will be critical for building local expertise and in turn driving long-run growth.

Status at Start of PISDAC II - September 2004

Institutions such as universities, R&D organizations and other vocational training institutes are not involved in the industry. Quarry owners and processors do not understand the role of academia and R&D institutes in industry growth. There is no understanding between industry and key universities, R&D institutes and vocational training institutes on the need for technical support and skill development.

Current Situation - August 2006

Linkages with academia and R&D institutes have developed over the course of the SWOG process. At least two representatives of academia have played an active part in the SWOG process. The SWOG has worked closely with the Center of Excellence in Geology at the University of Peshawar, as well as the University of Engineering & Technology, Peshawar. The Institute of Management Sciences in Peshawar has also been an ally in developing business proposals and has extended their support to the industry.

The University of Engineering and Technology Peshawar has conducted research in the field of controlled blasting while the Center of Excellence in Geology is providing consultancy and material testing services to the industry in accordance to the SWOG proposed guidelines.

IX. Communication

Status at Start of PISDAC II - September 2004

The marble and granite industry lack unity and the industry association has over the years been highly politicized and inefficient. The industry association (APMIA) is not considered very

representative and is unable to take up industry issues and concerns with the government and donors. Financial institutions, donors and other allied industries remain unaware of industry needs.

Current Situation - August 2006

The SWOG has provided a means for all segments of the value chain to sit at one table and build consensus on the issues they face. Besides having members of the industry from across Pakistan, the SWOG also includes key government representatives from concerned ministries, regulatory authorities and academia.

The SWOG structure has catalyzed confidence building between the public and private sector, making government policies more responsive to industry requirements.

X. National Representation

Status at Start of PISDAC II - September 2004

Pakistan's industry has failed to brand itself in the international market and has over the years been stereotyped as a mediocre industry with very little potential for growth. The industry has very little exposure in the international market and its leaders pursue purely personal agendas.

The Pakistani industry is not being represented in international fairs and exhibitions. All major players within the industry work in isolation and participate as individuals. Unity among the industry is lacking at international forums.

Current Situation - August 2006

As a consequence of the Italy study tour, the SWOG has begun to realize the importance of projecting a collective image of the Pakistani industry. In February 2006, the SWOG members participated in Stone Tech China and interacted with other international industries and associations and highlighted the industry's potential. In addition, the SWOG is being recognized as a representative entity of the marble and granite industry by international organizations such as the Italian Trade Commission and the EU.

XI. Branding

Branding is a common practice in the marble and granite industry, and product catalogues are extensively used for marketing and branding. The dimensional stone market is also considerably dependent on the unique aesthetic value of stone which over time is associated with the country of origin.

Status at Start of PISDAC II - September 2004

The concept of branding indigenous dimensional stone is not present. Most local stones are branded and marketed under the cover of foreign brands (such as "Verona" and "Botecina," Pakistani stones being marketed as an Italian brand). This gives a weak impression of the local industry. Limited understanding of the chemical and physical properties of the Pakistani stone hinders branding and material classification. No product catalogues have been developed.

Current Situation - August 2006

Through the SWOG, a broader spectrum of the industry has begun to realize the importance of branding local stone. Quarry owners and processors are now marketing local marbles and granites with indigenous names. Local dimensional stones with unique colors and properties are being increasingly promoted in the international market through USAID-funded short-term TA. There is a greater sense of identity related to Pakistani stone, instilling pride and confidence among industry members.

XII. Exhibitions and Trade Fairs

Status at Start of PISDAC II - September 2004

The marble and granite industry is inexperienced at international trade show participation and makes an amateur showing at best. In most cases the samples displayed are not available for quantity orders.

Linkages are not developed with international industry, nor do local players coordinate on international events.

Current Situation - August 2006

With the SWOG participation in the China fair in February 2006, the industry has begun to realize the value of collective participation and the added bargaining power it brings. The SWOG's participation in the China trade show enabled individuals to buy machinery and equipment at negotiated rates and provided exposure to other industry associations.

STRATEGIC INITIATIVES

The Pakistan Stone Development Company (PASDEC), a SWOG initiative, has been incorporated and funds have been approved to set up strategic projects across Pakistan. The SWOG will continue to act as an advisory body to the company while SWOG members will be represented on the PASDEC Board. The following initiatives will be implemented by the Company over the course of three years:

Ten Model Quarries

Using advertising to attract candidates and established criteria, PASDEC will set up 10 model quarries. These will be set up in partnership with the quarry owners, following standard benchmarks and guidelines. As a result, wastage will diminish and workforce skills will grow through onsite training at these quarries.

The model quarries will serve as examples in each quarry cluster, demonstrating improved productivity and profitability and encouraging other quarries to invest in the model technologies and practices.

Twenty Quarries Upgraded

Twenty quarries in Balochistan will be upgraded in order to eliminate primitive quarrying practices and put a halt to unnecessary waste of a non-renewable resource. Machines calling for low to medium levels of investment will be provided to the quarry owners with the understanding that they will cease dynamite blasting practices.

Common Machinery Pool

The first machinery pool will be set up with government funds in NWFP and will be run by PASDEC to assist quarry clusters in extracting square blocks and reducing wastage levels. The machinery in the pool will be available on short term lease at reasonable rates and should demonstrate its practicality and encourage investment.

Marble Cities

Marble cities will be set up in all provinces to organize the scattered factories and provide them with supporting infrastructure. Weight of transported materials is a significant cost factor within the industry, and therefore factories will tend to relocate closer to the quarries to minimize costs and maximize efficiency. Marble cities will function as industrial estates specifically for the marble and granite sector, having strategic locations with regard to major quarry clusters and road networks

Common Facility and Training Center

The common facility and training center will provide support to the marble cities by providing a skilled workforce and services enabling them to gain access to export markets. The centers will be housed within each marble city.

GOING FORWARD

1. To move forward, the industry needs to immediately put a stop to blasting practices and focus on extracting square blocks. The major weakness in the industry is at the quarrying stage, which then causes low capacity utilization throughout the rest of the value chain. The extraction of square blocks alone will more than double industry productivity and increase quality and value several times over.
2. A complete mapping of marble and granite reserves is essential to assess the true potential of all deposits. Geological Survey of Pakistan will be a critical partner in this exercise.
3. Proper prospecting and planning of quarry sites is needed to ensure secure investment and best results. Initial assistance will have to be sought from international experts while building local capacity through their assistance. Quarry cultivation plans will have to be prerequisite for starting any quarry project.

4. Detailed market surveys are essential to understanding local and international markets and reevaluating marketing strategies accordingly.
5. The industry will have to raise local sales and cash in on the local construction sector boom. In-depth understanding of the market will be needed by the industry to earmark materials that will be competitive in certain markets.
6. Quality standards must be followed throughout the value chain to gain access to the export market. More research also needs to be invested in product development, and local stones should be catalogued with their standard test results.
7. Processing plants should be mapped and evaluated to identify inefficiencies in layout and design.
8. Workforce development is a key factor in sustaining industry growth. All available international technical assistance in the form of quarry masters and industry experts should be utilized to provide onsite training and build a local resource of Master Trainers. Quarry internship programs for industry-nominated individuals must also be conducted to build local capacity and expertise.
9. Linkages with foreign industry associations, machinery manufacturers, universities and R&D institutes are critical. The SWOG should work to develop and maintain a comprehensive resource pool that can be tapped when implementing all its strategic initiatives.
10. Pakistani universities and R&D institutes must work closely with the industry and provide technical expertise through geological mappings, testing research, and other services.
11. The SWOG should explore new markets, especially South Asian countries such as Bangladesh and Sri Lanka, for possible export potential.
12. The industry must focus on long term goals while identifying the “low hanging fruit” and building momentum for development. This will encourage new investment in the sector and drive growth.
13. Through small training programs in using hand tools, the handicrafts and mosaics industry needs to be developed. The SWOG is already talking to local women in Peshawar to explore setting up a mosaic manufacturing and training center.
14. Direct interaction with the end user/consumer is essential, and will allow the industry to define unexplored market segments and personalization of products.
15. Quarry leasing regulations need to be evaluated and reforms suggested to local and federal governments.
16. The involvement of financial institutions must grow and special financial services will have to be developed to enable quarry owners, processors and other potential investors to modernize, expand and innovate.